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**National Highway  
Traffic Safety  
Administration**

# **Public Acceptability of Highway Safety Countermeasures**

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## **Volume II Safe Driving Conformance Research**

Andrea Vayda  
Irving Crespi

Mathematica Policy Research, Inc.  
P.O. Box 2393  
Princeton, New Jersey 08540

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16. Abstract <p>This volume is part of a larger study providing information about public attitudes towards proposed highway safety countermeasures in three program areas: alcohol and drugs, unsafe driving behaviors, and pedestrian safety. Topic areas discussed in this volume include Speed Limit Acceptance, Speed Detection Methods, and Dangerous and Negligent Driving. For each proposed countermeasure, results from the public survey provide measures of opinion, acceptability, and perceived effectiveness. The relationship of various demographic factors (e.g., age, sex, education, income, etc.) to countermeasure acceptance and perceived effectiveness is also reported. Issues such as perceived effectiveness, perceived safety benefits, potential for public resistance, legal problems, and ideological perspectives emerged as the dimensions along which members of special interest groups evaluated each of the proposed countermeasures.</p> <p>Perspectives on reactions to countermeasures in other program areas can be found in Volume III for Alcohol and Drug Research and in Volume IV for Pedestrian Safety. Volume I of this report describes the research methodology, while Volume V (Summary Report) concisely summarizes the principal results of each of the detailed countermeasure reports and provides guidelines for successful implementation of highway safety countermeasures.</p>					
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## METRIC CONVERSION FACTORS

### Approximate Conversions to Metric Measures

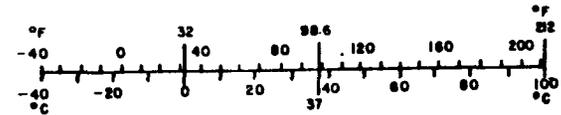
Symbol	When You Know	Multiply by	To Find	Symbol
<b>LENGTH</b>				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
<b>AREA</b>				
in <sup>2</sup>	square inches	6.5	square centimeters	cm <sup>2</sup>
ft <sup>2</sup>	square feet	0.09	square meters	m <sup>2</sup>
yd <sup>2</sup>	square yards	0.8	square meters	m <sup>2</sup>
mi <sup>2</sup>	square miles	2.6	square kilometers	km <sup>2</sup>
	acres	0.4	hectares	ha
<b>MASS (weight)</b>				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
<b>VOLUME</b>				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.96	liters	l
gal	gallons	3.8	liters	l
ft <sup>3</sup>	cubic feet	0.03	cubic meters	m <sup>3</sup>
yd <sup>3</sup>	cubic yards	0.76	cubic meters	m <sup>3</sup>
<b>TEMPERATURE (exact)</b>				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

\* 1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SD Catalog No. C13.10.286.



### Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
<b>LENGTH</b>				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
<b>AREA</b>				
cm <sup>2</sup>	square centimeters	0.16	square inches	in <sup>2</sup>
m <sup>2</sup>	square meters	1.2	square yards	yd <sup>2</sup>
km <sup>2</sup>	square kilometers	0.4	square miles	mi <sup>2</sup>
ha	hectares (10,000 m <sup>2</sup> )	2.5	acres	
<b>MASS (weight)</b>				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
<b>VOLUME</b>				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m <sup>3</sup>	cubic meters	35	cubic feet	ft <sup>3</sup>
m <sup>3</sup>	cubic meters	1.3	cubic yards	yd <sup>3</sup>
<b>TEMPERATURE (exact)</b>				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



## ACKNOWLEDGMENTS

The conceptual framework for the study and the overall design of the project were developed by Irving Crespi, who served as Principal Investigator for most of the project's duration. Despite his departure from Mathematica Policy Research prior to project completion, his insights and perspectives are imprinted on the basic orientation of the study and are reflected throughout this report.

The project greatly benefited from the encouragement and assistance provided by Michael Goodman and Maria Vegega, who were the Contract Technical Managers at NHTSA. Valuable input was also received from a number of other individuals at NHTSA, especially Steven Benson and Mark Anderson.

Although many people contributed to the completion of the survey, several individuals deserve special recognition for their roles at various stages of the project. Jan Stiefel and Christine Loy-Kennedy supervised the survey interviewers, using a computer-assisted telephone interviewing system that was fairly new at MPR. Dick Dame performed the programming necessary for the computer-assisted telephone interviewing system; Linda Sperling performed the programming for the numerous cross-tabulations required for the analysis. William Borden was responsible for constructing the many tables needed to present the general-public survey results, and also assisted in the analysis of the special-interest group data. Editing of the final report was performed by Thomas Good, who also coordinated the compilation of the final report product.

Andrea M. Vayda  
Project Director

## INTRODUCTION TO VOLUME TWO

This study of public acceptability is designed to provide information to the National Highway Traffic Safety Administration (NHTSA) on public attitudes toward proposed highway-safety countermeasures.

The countermeasure approaches included in this study represent three NHTSA research program areas: (1) Alcohol and Drug Research, (2) Safe Driving Conformance Research, and (3) Pedestrian Research. The research design for this study consisted of three complementary research procedures. First, focus-group discussions were conducted to identify the nature of public beliefs, concerns, and attitudes toward these countermeasures; issues that surfaced during these discussions were incorporated into the questionnaire for the general-public survey. Second, a sample survey of the general public was conducted to produce measurements of acceptability that could be projected to the national adult population. Third, interviews were conducted in ten states with representatives of specific groups and organizations that have a special interest in or a perspective about highway-safety countermeasures.

Since successful implementation of certain countermeasures depends on public acceptability, preliminary indications of public response can guide decisions about whether to proceed with or discontinue a particular strategy. The nature of public reactions can also provide a basis for modifying countermeasure designs and for developing implementation programs specifically targeted to address those aspects of the countermeasure that tend to trigger public support or opposition. Special-interest groups often are in a position to facilitate or thwart implementation of highway-safety countermeasures. They are frequently consulted by state legislatures and may serve as "opinion leaders" for the general public. Data from this study will provide an indication of the type of preliminary data, persuasion, or other attention particular groups may warrant in the event a countermeasure program would be implemented.

The report on the Public Acceptability of Highway Safety Countermeasures consists of five volumes. The organization of the report is guided by an interest in bringing together, by countermeasure, the findings from the focus-group discussions, the general-public survey, and the special-interest case studies.

In addition to this volume, which presents results on the Safe Driving Conformance countermeasures, Volumes III and IV each present findings on countermeasures in a specific NHTSA program area. Volume I provides a detailed description of the methodologies employed for each of the three studies and also contains copies of the data collection instruments. Volume V is a summary report which presents the highlights of the results for specific countermeasures and includes an overview of factors that influenced the acceptability of highway-safety countermeasures to the general public and to special-interest groups.

Specifically, the five volumes of the report are organized as follows:

- VOLUME ONE: BACKGROUND OF STUDY AND METHODOLOGY
- CHAPTER I Introduction
  - CHAPTER II Methodology
  - CHAPTER III Organization of the Report:  
Volumes I-V
- VOLUME TWO: SAFE DRIVING CONFORMANCE RESEARCH
- CHAPTER I The 55 MPH Speed Limit
  - CHAPTER II Speed Detection and Deterrence
  - CHAPTER III Dangerous and Negligent Driving  
Deterrence
- VOLUME THREE: ALCOHOL AND DRUG RESEARCH
- CHAPTER I Breath Testers
  - CHAPTER II Drunk Driving Deterrence
  - CHAPTER III Roadside Surveys
  - CHAPTER IV Impairment Resistance
- VOLUME FOUR: PEDESTRIAN SAFETY
- CHAPTER I Focus Group Discussions
  - CHAPTER II General Public Survey
  - CHAPTER III Special-Interest Case Studies
- VOLUME FIVE: SUMMARY REPORT

## ADDENDUM

### Final Report to "Public Acceptability of Highway Safety Countermeasures"

The purpose of this project was to obtain information about public attitudes on highway safety countermeasures in three program areas: alcohol and drugs, unsafe driving actions, and pedestrian safety. To this end, three methodologies were employed: Focus Group Discussions, Special Interest Case Studies, and a General Public Survey. This addendum discusses some critical issues related to interpretation of the project's results.

Focus Group Discussions were employed in the design and pilot stages of this project for the purpose of identifying relevant public acceptance issues worthy of investigation. Members of special interest groups often have access to highway safety policy makers and may be in positions to facilitate or thwart countermeasure implementation. Hence, the Special Interest Case Studies were conducted in an effort to obtain expert opinions about possible differences in perceptions of these highway safety countermeasures. The General Public Survey was conducted to obtain measures of general public views about highway safety issues and proposed countermeasures.

Of the three methodologies employed, only the General Public Survey was based on a statistically predictive sample and yielded quantitative data which are valid and can be interpreted as reflective of overall public opinion on specific issues. Both the Focus Group Discussions and the Special Interest Case Studies resulted in qualitative analyses which provide the reader with a broader perspective about the kinds of issues and concerns which may be associated with countermeasure implementation. However, the results from both the Focus and the Special Interest Groups cannot be generalized as representative of acceptability concerns in the general population.

It is important to realize that the Focus Group Discussions and the Special Interest Case Studies were informal, open-ended discussions. No attempt was made to supply respondents with additional information not included in the prepared countermeasure descriptions, or to correct any misunderstandings which respondents may have had. As a result, readers should realize that some of the judgments and reactions may have been based on misunderstandings of the issues. This was particularly the case in discussion of the Automated Speed Enforcement Device (ASED) and the Passive Breath Tester (PBT). Since the countermeasure description of the ASED was

vague with respect to how a photograph would be taken, some respondents incorrectly interpreted a "photograph of the car" to mean "a photograph of the driver." With this interpretation, invasion of privacy issues were raised. If the ASED were to be used in speed-enforcement, a photograph would only be taken of the rear of the vehicle (i.e., the objective would be to identify the license plate; vehicle occupants would not be identifiable). Hence, this particular privacy concern (i.e., photographing vehicle occupants) should not constitute a problem. In the case of the PBT, acceptance issues revolved primarily around legal concerns. As the legal issues associated with the PBT were not addressed in the countermeasure description, some respondents incorrectly interpreted the PBT as a test to quantitatively measure a suspected drunk driver's blood alcohol content (BAC). This interpretation raised issues concerning unreasonable search and seizure. The PBT was intended to collect evidence of alcohol presence in normally expelled breath, providing a foundation for further testing. Since expelled breath is considered "plain view" observation, its use is not considered a search and thus is not governed by Fourth Amendment standards of reasonableness, which do govern the use of the active, deep-lung air sample tests more familiar to respondents. Since the use of the PBT does not intrude on a driver's "reasonable expectation of privacy," search and seizure issues are not applicable. Readers should be aware however, that the technical feasibility of the PBT has not been established, and it is unlikely that further developmental efforts will be undertaken at this time. Finally, users of this report should be aware that these problems of misinterpretation were not evident in the General Public Survey, which provides the most definitive information regarding public acceptance of the countermeasures studied.

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## I. THE 55 MPH SPEED LIMIT

The 55 mph speed limit has been in effect for over six years and is seen as one of the most successful highway-safety programs ever, as well as an effective way to conserve energy. The extent to which the general public has accepted the 55 mph speed limit as a permanent policy, however, is not clear. Recent publicity suggests an increasing resistance to the new speed limit--that is, traveling at 55 takes too long, and the lower limit represents undue government control and interference.<sup>1/</sup> Thus, the purpose of this part of the survey is to measure public opinion about whether the 55 mph limit should be retained or raised.

### A. FOCUS GROUP DISCUSSIONS

Discussions of speeding countermeasures were conducted with four general-public groups of participants 18 to 29 years old, with four general-public groups of participants 30 years of age and older, with four special-interest groups.

#### 1. 55 MPH Speed Limit

Many of the discussants thought that driving faster than the posted speed limit was normal, acceptable behavior. They felt that the 55 mph speed limit was more of an imposition on themselves (to be ignored if possible) than a significant safety measure. As one middle-age Seattle driver commented, "55 is a sleepy speed, especially at a long distance. One reason for going faster is time. If you have the time, 55 is very comfortable. If you are in a hurry, it is a hindrance."

In the same vein, a Cincinnati driver said, "I speed because I can get away with it." A Trentonian observed that "on long-stretch, six-lane highways, the 55 mile limit is a nuisance." Other justifications for driving faster than 55 mph were the following:

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<sup>1/</sup> See, for example, "End the 55 mph Speed Limit?" U.S. News, 84-49-50, March 20, 1978; "U.S. Agency Finds Speeding Endemic." Automotive News, March 21, 1977, p. 72; and "Speeding Up the Speed Limit." Economist, vol. 270, February 10, 1979, p. 50.

"The roads are built to take speeds much higher--75 to 80."

"When you see 120 on your speedometer . . ."

"If it's there, you're going to try it."

The effectiveness of the 55 mph limit in reducing accident rates was a matter of dispute in some of the general-public groups. Some discussants maintained that the 55 mph speed limit was effective: "Statistics have shown that deaths have been cut by 40 percent. Human life has value." Safety benefits were sometimes attributed to a more acute public awareness: "The 55 mph limit is a factor in the reduced number of accidents. It's also made people more conscious of safety." Benefits were also seen in terms of the seriousness of accidents: "When you are hit at 55 mph, you are much better off. Also you can stop much faster." Similarly, a Trenton discussant observed that some people are not good drivers at faster speeds, and was willing to accept lower speed limits so that these less-skilled drivers "do not kill [him]."

Other discussants, however, challenged the safety value of the 55 mph limit. For example, exceeding the 55 mph limit was seen by some as necessary to stay within the flow of traffic: "Going 55 is kind of dangerous. Everyone goes faster." However, a discussant from the Seattle special-interest group claimed that "in 1974, when accident fatalities went down, the biggest reason was that traffic was way down." He further contended that reduced speed did have an effect, in that most accidents happen, not on straightaways, but at interchanges--"At points where people have to make a decision. If he is going slower, he has more time to make the decision."

Some discussants conceded that the 55 mph limit did have safety value, but attempted to rationalize not obeying it: "Cars don't operate well at 55, although it does reduce deaths. But people don't obey this. Someone going 55 is going to be hurt just as bad if he is hit by someone going 80." Finally, some discussants opposed the 55 mph limit on the grounds of economic burden: "Truck drivers and others who drive for a living are losing money. We need to consider the increased costs of products because of the impact of industry." Thus, in a variety of ways, the issue of safety to justify the 55 mph speed limit was frequently downgraded.

The 55 mph issue is made more complicated by what discussants saw as energy-conservation considerations. For one Seattle discussant, "The only good reason [for the 55 mph limit] is to conserve fuel. But people don't take this into account. Saving lives is probably not such a big impact." Another

discussant added the following: "The major reason the government brought in the 55 mph limit was the gas shortage. I think they should be talking about that more and more." A Denver discussant also felt that energy conservation was the primary justification for the 55 mph limit, but expressed a more compromising opinion: "The 55 mph speed limit is to conserve energy. I think we should conserve energy and save lives. These should be our priorities."

The combination of the permissive attitude toward speeding and the belief that safety is not the primary reason for imposing a 55 mph speed limit could account for the limited approval of this countermeasure. A number of discussants approved of the 55 mph limit only for heavy-traffic highways:

"If there is a long stretch of road without any on- and off-ramps, people should be allowed to go faster--about 70."

"On long stretches of road, 55 is really slow."

One Denver discussant suggested that the government "should put a 55 mph limit within a certain circumference of a city. After that it should be 70 to 75. People want to get to where they're going. Since most accidents happen within 25 miles of home, this would work."

Although one Seattle discussant suggested that the limit be 45 mph within certain areas, a more typical suggestion was to raise the 55 limit slightly: "Sixty is a more comfortable speed. It would cut out the cutting in and out. Fifty-five is just a little too slow. People are going to fudge anyway." One Cincinnati discussant felt that "going 55 is kind of dangerous. . . . Everyone goes faster. Whatever the limit is, people will go faster." Other, similar comments were the following:

"If you put 90 on the expressway, people will go 110 to 120."

"The tendency is to see how fast you can push it."

"'Beat the system' has gotten to be a common attitude."

One Seattle discussant conjectured, "Maybe the government is trying to out-think us. If they want us to go 60, they set the limit at 55."

For many discussants, speed limits were seen as inconvenient impositions on their driving styles, rather than as safety countermeasures. The issue of speed limits to these drivers was more a matter of impinging on personal freedom than of endangering life and limb. Even so, the discussions indicated that

although drivers may have preferred a higher speed limit, they did accept the fact that, at present, the 55 mph limit is in effect. Nothing in any of the discussions suggested that these drivers were challenging the legitimacy of speed detection to enforce existing limits. Instead, they felt that speeding and speed detection was a game in which they may or may not be caught. They appeared to be willing to take the risk, but they did ask that the game be played "fairly." Their reactions to specific speed-detection countermeasures were colored by this attitude.

## B. GENERAL PUBLIC SURVEY

During the focus-group discussions, general reactions to the speed limit were twofold: reactions to the 55 mph speed limit itself, and the perceived benefits of the reduced speed limit. The 55 mph speed limit was typically described as slow, inconvenient, and uncomfortable. Discussants also felt that adhering to the speed limit required a conscious, vigilant effort. Discussants identified a series of factors that they felt promoted speeding: highways, as well as cars, are built for faster speeds; most drivers on the road do exceed the limit, thus making it difficult, if not dangerous, to drive at 55; and the limit is irrelevant in certain areas of the country where there are few drivers on the road. Despite these criticisms, benefits of the 55 mph limit (e.g., reduced numbers and reduced severity of accidents) were a strong motivation for accepting the speed-limit reduction. Skepticism about benefits stemmed from uncertainty as to (1) whether the reduction in accidents resulted from lower speed or simply less traffic, and (2) whether the benefits could actually be realized, given lax enforcement.

An underlying attitude during the discussions was that driving around the speed limit (i.e. within about 5 to 10 mph) had an element of gamesmanship. While discussants felt that it was legitimate for law-enforcement officers to stop speeders, they also thought that there was a general tolerance for moderate speeding.

Public reaction to the 55 mph speed limit will be examined in terms of four dimensions:

- Preferred Speed Limit

The basic measure of acceptability was obtained by comparing the 55 mph limit to respondents' unprompted preference for a certain speed limit.

("Whether or not you yourself drive, in general, what do you think the speed limit for passenger cars should be on major highways?")

- Typical Driving Speed

An alternative perspective on acceptability is the extent to which drivers comply with a particular speed limit. The behavioral dimension was measured by respondents' usual highway driving speed.

("Suppose you're on a highway with a 55 mph speed limit, that is daytime, the weather is good, and traffic is moderate. In that case, what is the actual speed you normally find yourself driving at?")

- Perceived Effectiveness

Effectiveness was measured by the extent of accident reduction attributed to the 55 mph speed limit.

("In your opinion, does strict enforcement of the 55 mph speed limit reduce the number of highway accidents a lot, a little, or not at all?")

- Preference for Nationwide or Statewide Speed Limit

Attitudes toward having a single speed limit were measured by a preference for nationwide- versus statewide-specific speed limits.

("In your opinion, should the maximum speed limit be the same throughout the country, or should each state set its own speed limit?")

Section 1 examines the acceptability of the 55 mph speed limit in relation to typical driving speed and the demographic characteristics. Section 2 covers the perceived effectiveness of the speed limit; variations by demographic characteristics are examined, as well as the relationship between effectiveness and acceptability. Section 3 presents data on national versus state speed limits, also in relation to demographic characteristics and the acceptability of the 55 mph speed limit.

### 1. Acceptability of the 55 MPH Speed Limit

Table I.1 shows the distributions for preferred speed limit and typical driving speed. The 55 mph speed limit was favored by a majority of respondents: 58 percent of the drivers and 67.6 percent of the nondrivers cited 55 as their speed-limit preference. Another 4.6 percent of the drivers and 17 percent of the nondrivers would prefer a speed limit below 55 mph. About one-third of the drivers (36.7 percent) indicated that the speed limit should be higher than 55 mph. Specifically, 20.2 percent of the drivers preferred that the speed limit be between 56 and 60; 12.2 percent would opt for speed limits in the 61 to 65 mph range. Very few of the drivers (4.3 percent) would raise the speed limit by more than 10 mph. Predictably, nondrivers were more conservative about the speed limit: only 13.8 percent reported preferences higher than 55 mph.

Approximately half (48.4 percent) of the drivers reported that their normal driving speed was at or below the 55 mph limit. Although an equal number of drivers exceed the speed limit as comply with it, most speeding occurs within a 5 mph range. While 51.1 percent of the drivers typically drive faster than 55 mph, 37.3 percent drive at between 56 and 60 mph. (Fewer drivers--20.2 percent--preferred that the speed limit actually be in that range.)

TABLE I.1  
PREFERRED SPEED LIMIT, FOR DRIVERS AND NONDRIVERS,  
AND TYPICAL DRIVING SPEED FOR DRIVERS

	Preferred Speed Limit (Q. 1a)		Typical Driving Speed (Q. 3)
	Nondrivers	Drivers	Drivers
Less than 55	17.0	4.6	11.0
55	67.6	58.0	37.4
56-60	7.2	20.2	37.3
61-65	5.5	12.2	11.6
66+	1.1	4.3	2.2
Undecided	1.6	0.7	0.4
Total	(100.0) (182)	(100.0) (1,323)	(100.0) (1,323)

TABLE I.2  
PREFERRED SPEED LIMIT BY TYPICAL DRIVING SPEED, FOR DRIVERS

Typical Driving Speed (Q. 3)	Preferred Speed Limit (Q. 1a)				
	< 55	55	56-60	61-65	66+
< 55	47.6	13.1	3.4	3.1	0.0
55	34.4	49.5	21.8	15.5	15.8
56-60	16.4	31.2	59.8	41.6	31.6
61-65	1.6	5.5	14.3	37.3	22.8
66+	0.0	0.7	0.7	2.5	29.8
Total	100.0 (61)	100.0 (763)	100.0 (266)	100.0 (161)	100.0 (57)

$p < .001$ <sup>a/</sup>

<sup>a/</sup> Expected values in over 5 percent of the cells are less than 5; chi-square may not be valid.

a. Relationship to Typical Driving Speed

As expected, there is a strong relationship between attitudes towards the 55 mph limit and speeds actually driven (see Table I.2). First, the acceptability of the limit is more likely if typical driving speed is also 55 mph. Preference for a higher speed limit greatly reduced the chances of driving at 55 mph. For example, 62.6 percent of the drivers who preferred a 55 mph speed limit also drive within that speed, while only 25.2 percent of the drivers who preferred a somewhat higher limit (56 to 60) drive within the speed limit. Second, the relationship between preferred speed limit and typical driving speed dropped off when the preferred limit was greater than 60--that is, drivers who preferred the speed limit to be 65 or higher tend actually to drive slower than that limit. Of the drivers who felt that the speed limit should be around 65, 37.3 percent do drive around 65, but 60.2 percent drive at under 60 mph. The notion of a 5 to 7 mph speed margin appeared to be evident for drivers who scoffed at the 55 mph limit.

Driving speed is a good predictor of acceptability of the 55 mph limit. 55 mph limit. Most drivers who drive at or below 55 mph felt that this should be the speed limit: 80.3 percent of those who normally drive at the limit, and 90.2 percent of those who drive below. The discrepancy between driving speed and preference for the 55 mph limit became wider with increased speed. Only about half (48.2 percent) of the drivers who exceed the speed limit by approximately 5 mph or less favored the 55 mph limit; this dropped to 27.5 percent in favor of the limit among drivers who exceed 55 mph by approximately 10 mph.

The relationship between normal driving speed and the acceptability of the 55 mph speed limit can be addressed with three specific questions:

- To what extent are drivers who drive at or below the speed limit comfortable with (prefer 55 and drive at 55) or constrained by (drive at 55 but prefer higher) this speed limit?
- To what extent do drivers regard the speed limit as a general guideline which they can then exceed by a certain amount (prefer 55, drive at a higher speed)?
- To what extent do drivers reject the speed limit altogether (prefer a higher limit, drive at a higher speed)?

To answer these questions, each combination of preferred speed limits and typical driving speed (see Table I.2) was treated as one set of categories, and a percentage distribution was calculated for these categories; these figures are shown in Table I.3. These percentages can then be partitioned into four types of reactions to the 55 mph speed limit:

	<u>Percent of Total Sample</u>
Congruence (preference and driving speed the same)	40.3
Constraint (preference for higher speed limit/drive at 55)	8.1
Guideline (preference for 55/drive at higher speed)	22.7
Rejection (preference for higher limit/drive at higher speed)	28.9
Total	100.0 (1,308)

TABLE I.3  
RELATIONSHIP BETWEEN PREFERRED SPEED LIMIT AND  
TYPICAL DRIVING SPEED FOR TOTAL SAMPLE OF DRIVERS

Typical Driving Speed (Q. 3)	Preferred Speed Limit (Q. 1a)				
	< 55	55	56-60	61-65	66+
< 55 (congruence)	2.2	7.6	0.7	0.4	0.0
55	1.6	28.9	4.4	1.9	0.7
56-60 (guideline)	0.8	18.2	12.2	5.1	1.4
61-65	0.1	3.2	2.9	4.6	1.0
66 +	0.0	0.4	0.1	0.3	1.3
					100.0 (1,308)

For the largest segment of drivers (40.3 percent), preference for a 55 mph speed limit (or lower) coincided with actual driving speed. Further, only a small portion of drivers who objected to the 55 mph are actually constrained by it: only 8.1 percent of the drivers who felt that the speed limit should be higher adhere to it. A tendency for drivers to drive a certain amount over the speed limit, although they do not object to that limit, operated to a limited extent--22.7 percent of the drivers fell into that category. Finally, over one-quarter of the drivers (28.9 percent) rejected the 55 mph speed limit altogether. For these drivers, who objected to the 55 limit and who usually exceed it, the alternative speed was either 60 or 65.

b. Differential Acceptability of the 55 MPH Speed Limit Across Demographic Subgroups

Tables I.4 to I.7 show preferred speed limit and typical driving speed by demographic characteristics of drivers. Statistically significant differences occur for each of the characteristics.

Support for, as well as adherence to, the 55 mph speed limit was greater in the Northeast than in the other regions of the country. The sharpest contrast was between the Northeast and the West: 74.5 percent of the drivers in the Northeast, versus 53.9 percent of the drivers in the West, preferred that the speed limit be 55 or lower. Also, drivers in the Northeast were less inclined than drivers elsewhere to opt for a much higher speed limit; 6.8 percent of the drivers in the Northeast, 18.2 percent in the South, 18.8 percent in the Midwest, and 21.8 percent in the West favored a speed limit of over 60. The same pattern of regional differences occurs for typical driving speed: compliance with the 55 mph speed limit was most prevalent in the Northeast (55.4 percent) and least prevalent in the West (38.6 percent).

Acceptance of, and adherence to, the 55 mph speed limit was higher among women than men. A 55 mph speed limit was preferred by 63.4 percent of the female drivers and 52 percent of the male drivers. This is consistent with differences in actual driving speeds: 53.4 percent of the females drive within the speed limit, as compared to 41.9 percent of the males. Male drivers were also more inclined than females to favor driving speeds above 60 and to drive at faster speeds.

Both the acceptance of, and adherence to, the 55 mph speed limit increased with the age of the driver. Whereas 51.9 percent of the drivers under age 30 favored a 55 mph limit, 66.7 percent of the drivers age 45 and older favored this limit. Differences in the rate of adherence to the 55 mph limit,

TABLE I.4  
PREFERRED SPEED LIMIT AND TYPICAL DRIVING SPEED,  
FOR DRIVERS, BY REGION

	Preferred Speed Limit (Q. 1a)				Typical Driving Speed (Q. 3)			
	NE	S	MW	W	NE	S	MW	W
Less than 55	7.5	3.9	3.4	3.9	13.9	12.2	10.1	5.6
55	67.0	58.5	55.3	50.0	41.5	36.9	37.9	33.0
56-60	18.0	18.9	22.5	22.2	33.7	35.2	39.9	42.2
61-65	5.4	13.4	13.2	17.0	9.2	12.0	10.1	16.1
66 +	1.4	4.8	5.6	4.8	1.0	3.2	1.4	3.1
Undecided	0.7	0.5	0.0	2.2	0.7	0.5	0.6	0.0
Total	100.0 (294)	100.0 (434)	100.0 (356)	100.0 (230)	100.0 (294)	100.0 (434)	100.0 (356)	100.0 (230)
	p < .0001				p < .01			

TABLE I.5  
PREFERRED SPEED LIMIT AND TYPICAL DRIVING SPEED,  
FOR DRIVERS, BY SEX

	Preferred Speed Limit (Q. 1a)		Typical Driving Speed (Q. 3)	
	M	F	M	F
Less than than 55	3.6	5.5	9.7	12.2
55	52.0	63.4	33.2	41.2
56-60	21.0	19.5	37.9	36.9
61-65	16.9	8.0	15.8	7.8
66 +	6.0	2.7	2.8	1.6
Undecided	0.5	0.9	0.6	0.3
Total	100.0 (632)	100.0 (691)	100.0 (632)	100.0 (691)
	p < .001		p < .001	

TABLE I.6  
PREFERRED SPEED LIMIT AND TYPICAL DRIVING SPEED,  
FOR DRIVERS, BY AGE

	Preferred Speed Limit (Q. 1a)			Typical Driving Speed (Q. 3)		
	< 30	30-44	45+	< 30	30-44	45+
Less than 55	3.8	3.9	5.5	7.6	9.3	14.9
55	51.9	54.0	66.7	26.7	37.4	46.2
56-60	27.5	21.1	13.2	49.6	34.0	30.4
61-65	10.8	15.1	11.7	13.1	16.0	6.8
66 +	5.3	5.0	2.7	2.8	2.8	1.3
Undecided	0.7	0.9	0.2	0.2	0.5	0.4
Total	100.0 (397)	100.0 (430)	100.0 (454)	100.0 (397)	100.0 (430)	100.0 (454)
	p < .001			p < .001		

by age, were even more divergent: 34.3 percent of the drivers under 30, versus 61.1 percent of the drivers over 44, drive within the current speed limit. Driving just above the speed limit was especially commonplace for drivers under age 30. A noteworthy point here is that while acceptance varied sharply with age, the tendency was for younger drivers to prefer and to drive at speeds that are within 5 mph of the current limit. The middle-age driver was actually more favorable to speed limits over 60.

Differences in the acceptance of the 55 mph speed limit by drivers' educational levels were fairly small. It is interesting, however, that while speed-limit preference varied very little along educational lines, drivers with higher educations reported above-55 driving speeds to a far greater extent. Of the drivers with less than a high school education, 34.2 percent reported their normal driving speed to be over 55, as compared with 58.7 percent of the drivers with at least some college. Several explanations can be suggested: educational level may be related to other demographic factors such as region; drivers with less education may be more constrained by chances of police enforcement; and less education may also be associated with an underreporting of speeding violations.

TABLE I.7  
 PREFERRED SPEED LIMIT AND TYPICAL DRIVING SPEED,  
 FOR DRIVERS, BY EDUCATION AND INCOME

	Education					
	Preferred			Typical		
	Driving Speed (Q. 1a)			Driving Speed (Q. 3)		
	< High School	High School Grad	Any College	< High School	High School Grad	Any College
Less than 55	8.1	5.0	2.5	20.5	10.9	6.3
55	58.6	58.4	57.4	44.0	37.0	34.8
56-60	18.8	20.3	20.8	23.0	38.8	42.4
61-65	12.0	12.3	12.9	9.5	11.1	13.6
66 +	2.5	3.0	5.9	1.7	1.8	2.7
Undecided	0.0	1.0	0.5	1.3	0.4	0.2
Total	100.0 (234)	100.0 (497)	100.0 (557)	100.0 (234)	100.0 (497)	100.0 (557)
	p = .01			p < .001		

	Income			
	Preferred Driving		Typical Driving	
	Speed (Q. 1a)		Speed (Q. 3)	
	<12,000	12,000+	<12,000	12,000+
Less than 55	7.9	3.5	19.1	7.3
55	67.0	54.1	39.9	35.2
56-60	12.9	22.9	31.8	40.8
61-65	9.9	13.8	7.6	13.2
66 +	1.7	5.0	1.3	2.5
Undecided	0.6	0.7	0.3	0.5
Total	100.0 (303)	100.0 (902)	100.0 (303)	100.0 (902)
	p < .001		p < .001	

Acceptance of the 55 mph speed limit was more likely to occur among drivers with household incomes of less than \$12,000 (67 percent in favor) than among drivers with higher incomes (54.1 percent in favor). Similarly, adherence to the speed limit was reported by 59 percent of lower-income drivers versus 42.5 percent of higher-income drivers.

2. Perceived Effectiveness of the 55 MPH Speed Limit

Approximately half of the drivers surveyed perceived that there is a strong connection between driving speed and highway-accident rates: 48.9 percent felt that the number of accidents would be reduced "a lot" if the 55 mph speed limit were strictly enforced (see Table I.8). Most drivers did attribute at least some reduction in accidents to the 55 mph speed limit; less than 10 percent felt that the 55 mph speed limit did not have any potential for influencing the occurrence of highway accidents. For nondrivers, speed appeared to be an even more dominant factor in accident occurrence than it was for drivers: 62.6 percent felt that strict enforcement would reduce accident rates "a lot."

a. Variations in Perceived Effectiveness by Demographic Characteristics

Table I.9 shows the distributions of perceived effectiveness by region, sex, age, education, and income levels of drivers. In each case, differences between subgroups are statistically significant.

TABLE I.8  
PERCEIVED EFFECTIVENESS OF A STRICTLY ENFORCED 55 MPH  
SPEED LIMIT, FOR DRIVERS AND NONDRIVERS

Extent of Reduction in Number of Highway Accidents (Q. 4)	Drivers	Nondrivers
A Lot	48.9	62.9
A Little	38.5	25.8
Not At All	9.5	7.7
Undecided	3.1	3.9
Total	100.0 (1,323)	100.0 (182)

TABLE 1.9

PERCEIVED IMPACT OF STRICT ENFORCEMENT OF 55 MPH SPEED LIMIT ON NUMBER OF ACCIDENTS,  
BY DEMOGRAPHIC CHARACTERISTICS

Reduction in Number of Accidents (Q. 4)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	< 30	30-44	45+	< High School	High School Grad	Any College	< \$12,000	\$12,000+
A Lot	44.2	54.6	48.9	45.3	43.7	53.5	41.6	47.9	56.4	53.0	45.7	49.6	55.1	47.4
A Little	39.8	34.3	39.0	43.0	41.1	36.2	46.6	39.8	30.2	29.5	42.2	39.3	31.0	40.7
Not At All	12.6	7.9	8.5	10.0	12.7	6.7	9.3	9.7	10.3	14.1	9.1	8.6	9.9	9.9
Undecided	3.4	3.2	3.6	1.7	2.5	3.6	2.5	2.6	3.1	3.4	3.0	2.5	4.0	2.0
Total	100.0 (294)	100.0 (434)	100.0 (356)	100.0 (230)	100.0 (632)	100.0 (691)	100.0 (397)	100.0 (430)	100.0 (454)	100.0 (234)	100.0 (497)	100.0 (557)	100.0 (303)	100.0 (902)
		p < .05			p < .001		p < .001			p < .01			p < .05	

Percentage differences across the four regions are relatively small. Drivers in the South, however, were more likely to associate "a lot" of reduction in accident rates with strict enforcement of the 55 mph speed limit.

Women were more confident than men in the effectiveness of the 55 mph speed limit: 53.5 percent of the female drivers and 43.7 percent of the male drivers expected "a lot" of impact.

The extent to which drivers felt that accident reduction would be realized as a result of the 55 mph speed limit varied directly with age. Of the older drivers, 56.4 percent expected "a lot" of reduction, as compared to 41.6 percent of the drivers under age 30.

Lower educational levels and lower income levels also increased the likelihood that a reduced speed limit would be regarded as very effective. Whereas 53 percent of the drivers with less than a high school education and 55.1 percent of the drivers with incomes of less than \$12,000 felt that strict enforcement would reduce highway-accident rates "a lot," this position was held by 45.7 percent of the high school graduates and 47.4 percent of the drivers with higher incomes.

b. Relationship of Perceived Effectiveness and Acceptability of the 55 MPH Speed Limit

As would be expected, perceived effectiveness (in terms of a reduction in accident rates) played an especially strong role in whether or not drivers believed that the speed limit should be 55: almost three-quarters of the drivers who perceived a strong connection between speed and accidents indicated 55 as their preferred speed limit (see Table I.10). It is surprising that this proportion was not even larger. It is possible that for the 21.5 percent of the drivers surveyed who preferred a higher speed limit despite the safety benefits of the 55 limit (1) the 55 may be unnecessarily low still to have a reduction in accident rates, or (2) somewhat higher accident rates may be an acceptable tradeoff for a higher speed limit.

The relationship between perceived effectiveness and acceptance of the 55 mph speed limit is underscored by the finding that 68.2 percent of the drivers who felt that the speed limit had no bearing on accident rates preferred that the speed limit be higher than 55. In fact, of the drivers who felt that the 55 mph speed limit did not reduce accident rates at all, 39.7 percent preferred that the speed limit be over 60 mph.

Perceived effectiveness of the 55 mph speed limit did not show as strong a relationship to driving-speed habits as it did to speed-limit preferences. Nevertheless, a direct relationship between perceived effectiveness still held. Of the drivers who felt that the 55 mph speed limit was very effective, 41.6 percent typically drive faster than the limit; this proportion increased to 68.2 percent among drivers who attributed no effectiveness to the 55 mph speed limit.

3. Preference for a Nationwide or Statewide Speed Limit

The imposition of the 55 mph speed limit standardized the maximum speed on a national basis, in that it reduced the limit from 60, 65, or higher in various parts of the country. As identified during the focus-group discussions, acceptance of the 55 mph speed limit sometimes depended on whether there could be exceptions to that regulation. Specifically, 55 was considered irrelevant in

TABLE I.10  
 PREFERRED SPEED LIMIT AND TYPICAL DRIVING SPEED,  
 FOR DRIVERS, BY PERCEIVED IMPACT OF STRICT ENFORCEMENT ON  
 NUMBER OF ACCIDENTS

	Preferred			Typical		
	Speed Limit (Q. 1a)			Driving Speed (Q. 3)		
	Number of Accidents			Number of Accidents		
	Reduced (Q. 4):			Reduced (Q. 4):		
	A Lot	A Little	Not At All	A Lot	A Little	Not At All
Less than 55	5.3	3.5	4.8	13.3	9.0	4.8
55	72.6	47.0	27.0	44.6	31.4	25.4
56-60	15.8	24.6	28.5	33.9	41.4	37.3
61-65	4.0	18.6	27.8	6.6	15.1	26.2
66 +	1.7	5.5	11.9	1.1	2.9	4.7
Undecided	0.6	0.8	0.0	0.5	0.2	1.6
Total	100.0 (646)	100.0 (510)	100.0 (126)	100.0 (646)	100.0 (510)	100.0 (126)
	p < .001			p < .001		

sparsely populated areas with very low traffic counts, and some raised the issue that states should have the right to govern speed limits on their own highways.

Given a choice between a single speed limit throughout the country and allowing each state to set its own speed limit, a majority of the drivers (68.3 percent) preferred a single, nationwide speed limit. State-specific limits were preferred by 30.2 percent of the drivers surveyed; 1.5 percent were undecided.

Table I.11 shows the preferences for national- versus state-imposed limits by demographic characteristics. Differences in opinions about a unilateral speed limit were most pronounced across regions of the country. Drivers in the Northeast and, to a lesser degree, in the West were more likely to be proponents of state-set speed limits. The majority of drivers surveyed in the South (71.9 percent) and in the Midwest (74.4 percent) favored having one speed limit throughout the country. In contrast, a national limit was preferred by 59.2 percent of the drivers in the Northeast and by 63.5 percent in the West. This pattern was contrary to expectations, since the more densely populated Northeast would have less to lose with a national limit; thus, drivers there were expected to be less likely to oppose it.

Females were more likely than males to support a national limit over state-set limits. This was consistent with greater female preference for, and adherence to, the 55 mph limit. Opinions about the issue of national versus state speed limits did not vary significantly by age, education, or income levels.

a. Relationship of Opinions about National Speed Limit to Acceptance of the 55 MPH Speed Limit

The position that speed limits should be set by each state was associated with a preference for higher speed limits (see Table I.12). The implication is that allowing states to determine speed limits would raise the speed limit at least in certain states. Of the drivers who preferred a single national limit, 62 percent favored a 55 mph limit; 49.2 percent of the drivers choosing state-specific limits favored a 55 mph limit.

While there was some tendency for drivers who preferred state-set limits to drive at faster speeds, the differences were smaller than for the preferred speed limit. Driving at or below the speed limit was reported by 51.3 percent of the drivers who favored a national speed limit and by 41.8 percent who favored statewide limits.

TABLE 1.11

DRIVERS' OPINIONS ABOUT NATIONAL VERSUS STATE-SET SPEED LIMIT,  
BY DEMOGRAPHIC CHARACTERISTICS

National versus State Limits (Q. 1b)	Region				Sex		Age			Education			Income		
	NE	S	MW	W	M	F	< 30	30-44	45+	< High School	High School Grad	Any College	< \$12,000	\$12,000+	
	National	59.2	71.9	74.4	63.5	65.5	70.8	67.0	65.8	71.6	72.2	67.2	66.4	68.0	68.0
State	39.1	25.3	25.0	36.1	33.7	27.1	31.2	33.5	26.6	25.2	31.8	32.0	30.4	30.8	
Undecided	1.7	2.8	0.6	0.4	0.8	2.1	1.8	0.7	1.8	2.6	1.0	1.6	1.6	1.2	
Total	100.0 (294)	100.0 (434)	100.0 (356)	100.0 (230)	100.0 (632)	100.0 (691)	100.0 (397)	100.0 (430)	100.0 (454)	100.0 (234)	100.0 (497)	100.0 (557)	100.0 (303)	100.0 (902)	
	p < .001				p = .01										

TABLE I.12

PREFERRED SPEED LIMIT AND TYPICAL DRIVING SPEED, FOR DRIVERS,  
BY OPINIONS ABOUT NATIONAL- VERSUS STATE-SET SPEED LIMIT

	Preferred Speed Limit (Q. 1a)		Typical Driving Speed (Q. 3)	
	Limit Should be National (Q. 1b)	Limit Should be State-Set	Limit Should be National	Limit Should be State-Set
less than 55	4.2	5.2	11.7	9.8
55	62.0	49.2	39.6	32.0
56-60	18.8	23.2	36.1	40.2
61-65	10.8	15.6	10.6	14.0
66+	3.5	6.0	1.8	3.0
Undecided	0.7	0.8	0.2	1.0
Total	100.0 (903)	100.0 (400)	100.0 (903)	100.0 (400)
	p < .001		p < .05	

#### 4. Summary

Given an opportunity to identify a speed limit of their choice, 58 percent of the drivers surveyed chose 55 mph; 4.6 percent preferred a lower speed limit. Most of the drivers who preferred speed limits higher than 55 mph, however, would raise that limit only by about 5 mph. Speed limits higher than 60, quite commonplace 5 to 6 years ago, were preferred only by 16.5 percent of the drivers.

Drivers were more conservative in setting speed limits than in their actual driving speed: 48.4 percent reported driving within the speed limit most of the time, as compared to 62.6 percent who felt that the speed limit should be 55 or lower. Another 37.3 percent drive in the 56 to 60 mph range, and 13.8 percent typically drive at over 60 mph.

Survey results suggest that two types of speeders must be taken into account in assessing the acceptability of the 55 mph speed limit. One type of speeder clearly rejects the 55 mph limit; he or she drives at higher speeds and feels that the speed limit should be higher. This group accounted for approximately half of the "speeders" and 28.9 percent of the total driver

sample. A second type of speeder does favor the 55 mph speed limit, but, for personal driving purposes, (1) assumes that there is a "speeding margin" that expands the speed limit by a few miles per hour, or (2) chooses to take safety and/or detection risks. For almost one-quarter (22.7 percent) of the total survey sample, exceeding the speed limit did not reflect a preference for a higher limit.

The extent to which the 55 mph speed limit was perceived to reduce the number of highway accidents was a very prominent factor in the acceptability of the speed limit. With strict enforcement, 48.9 percent of the drivers expected "a lot" of reduction in accident rates. Of the drivers who expected the 55 mph limit to influence accident rates "a lot," 77.9 percent also preferred a 55 mph speed limit.

The relationship between perceived effectiveness and preference for a 55 mph limit is further refined when demographic factors are taken into account. A strong association existed between certain characteristics of drivers and both the acceptance and perceived effectiveness of the 55 mph limit. Drivers most likely to oppose the current limit were males, were under the age of 45, had higher educational levels, higher income levels, and lived in either the Midwest or the West. The same characteristics were associated with opinions that the reduced speed limit, strictly enforced, does not have a bearing on highway-accident rates.

Finally, a single, national speed limit received a larger share (over two-thirds) of driver support than having states set their own limits. The data show that interest in state-specific limits reflected an interest in simply raising the speed limit: 44.8 percent of the drivers who supported statewide limits favored raising the speed limit, whereas 33.1 percent of the drivers who preferred a national limit opted for a higher speed limit.

C. SPECIAL INTEREST STUDY

*Special-interest perspectives were included in this research in an effort to identify expert and leadership opinion about highway-safety countermeasures. The reader is cautioned, however, that respondents in this study do not constitute a statistically representative sample, and their reactions to the countermeasures should not be generalized to special-interest groups as a whole. Further, although respondents were selected because of their affiliation with certain groups and they responded from that vantagepoint in most cases, they were not acting as official spokespersons for those groups and their position should not be construed as the official position of that organization. Readers should consult Volume I (Chapter II) of this report for a detailed description of the methodology employed for the special-interest study.*

*The following reactions by special-interest groups were based on brief and very general descriptions of the countermeasures. The intent was to represent the overall concept and to allow specific issues and areas of concern to surface through informal, open-ended discussions. It is important to recognize that the reactions represent opinions and judgments and are not necessarily definitive analyses of the highway-safety issues discussed. Special-interest perceptions of these countermeasures are especially useful to highway-safety planners in formulating appropriate educational programs and implementation strategies.*

Support for the 55 mph speed limit was not an issue among special-interest respondents--there was evidence of broad-based support for the concept of a 55 mph limit. Respondents were divided, however, in their opinion about how effective the 55 mph limit has been and how viable it is as an enforceable and publicly accepted speed limit. One point frequently made during the interviews was that the number of accidents and the severity of accident-related injuries have decreased since the lower speed limit went into effect. On the other hand, it was also widely held that the 55 mph speed limit has not been accepted by the public and has not significantly altered persons' driving-speed habits. These two points define the polar positions: demonstrated safety benefits on the positive side, and widespread public resistance and disregard on the negative side. It is important to stress that, for the special-interest respondents, a negative stance did not necessarily mean that they objected to the lower speed limit per se; rather, the significance of public response to the 55 limit figured prominently in their reactions. Preference for a higher speed limit (60 or 65 mph) reflected their perception that the public objects to

the 55 mph speed limit, and that efforts to gain public compliance with the 55 mph limit have largely been unsuccessful.

1. Special Interest Perspectives on The 55 MPH Speed Limit

Both proponents and opponents of the 55 mph limit were found across all of the special-interest-group types, and observations about national or local experience with the reduced limit were not unique to any particular group. On a few points, however, the comments of "implementation and enforcement" groups (highway-safety, the state police, and police chiefs) and "business interest" groups (the insurance, trucking, and auto-dealer industries, and the AAA) did reflect their specific roles and interests with respect to the 55 mph limit. The 55 mph speed limit did not raise any specific legal or civil-liberties issues, and the viewpoints of respondents affiliated with bar associations and ACLUs were based largely on personal opinions and preferences.

a. Enforcement Perspective

For a number of the highway-safety, state-police, and police-chief respondents, enforcing the 55 mph speed limit has been a problematic and frustrating experience. Respondents from all three groups made the point that "more people exceed the speed limit when the limit is lower." Thus, with the 55 mph speed limit, the states' speed-enforcement tasks have become much more difficult and widespread, and existing manpower resources have been severely strained. Given the low level of voluntary public compliance, some respondents considered the 55 mph limit to be unenforceable ("It can't be enforced." "It's impossible to enforce it." "[It's] almost a hopeless problem.") or that it at least requires substantially more manpower ("We would have to triple the force." "It's too difficult to enforce, especially with our manpower problems."). Because some state and local police departments have been faced with budgetary cutbacks, resentment was also expressed that "the federal government requires compliance with the 55, but requires the state to pay for it." The increase in the number of people speeding, along with federal monitoring of state compliance for purposes of funding allocations, has led to the deployment of additional police for speed-enforcement functions. As a result of having to "increase enforcement on highways, other areas of traffic enforcement have been affected."

Public support of police functions is an important value for law-enforcement officers. As pointed out by one highway-safety representative, "the police oppose the 55 because the public opposes it. Police resent being unpopular with the public because of the 55." An opinion was expressed by some

police that they have borne the brunt of public anger at the 55 mph limit and, because of ineffective enforcement, have also lost some public respect and credibility. Both state-police and police-chief respondents indicated that they were not willing to be the crusaders nor the villains for the 55 mph cause. To illustrate the sense of futility in trying to enforce a law in the face of widespread public resistance, one respondent compared the 55 mph limit to prohibition. Another respondent made the point that enforcement, no matter how extensive, could not replace the basic need for public acceptance of the 55 mph limit as a real constraint on driving speed:

"There is too little compliance with the 55. Everyone speeds. You can write as many tickets as you want. . . . Voluntary compliance is the key. Without voluntary compliance, there is no way the 55 will be effective."  
(State police respondent)

Enforcement of the 55 mph limit was thought also to be handicapped seriously by inadequate backing by state legislatures and the courts. Since judges allowed such a wide margin of error, state-police respondents indicated that strict enforcement of the 55 mph limit by police was needless: "Courts allow 10 mph over, and people know they can go 63 without getting stopped; [thus], police don't ticket at less than 65 because courts do not uphold the conviction." Moreover, the sanctions typically imposed for speeding violations were not considered high enough to discourage speeding. Respondents noted that "the fine system is too low to detect speeding," and that "a \$15 fine is no deterrent--you need much higher fines to deter." "Steep fines" and "harsh laws" were considered necessary to change the existing speeding habits. In one state, there is only a \$5 fine for day-time speeding between 55 and 70 mph (although the fines are higher for speeding during night-time hours). There is evidence from several states which suggests that the trend is away from more rigorous enforcement and toward a liberalization of penalties for traffic offenses. With decriminalization of traffic laws, the sanction for speeding consists only of a fine ("and the fine is very small"); further, a court appearance by violaters is no longer necessary. Decriminalization was introduced to ease court backlogs; however, without the requirement to appear in court and without stiff fines, the police expect that even the increased likelihood of being stopped would have little deterrent effect: "Speeders [would] just pay the fines." In another state, enforcement is weakened by court rulings that 55 to 70 mph cannot be considered a "multiple traffic offense," thus making speeds under 70 a minor

offense. Finally, the following comment by a state-police respondent describes how the shift away from a point system for speeding violations has undermined enforcement of the 55 mph limit:

"We used to have a penalty system for going over the speed limit, and the driver lost his license after so many points. Now legislators have mandated no court costs or penalty points up to 10 mph over the speed limit. This equals no support and we're expected to enforce it. This causes problems with the court judges also, because with no court costs the legislature is making them work without any payment. This essentially sets the speed limit at 65 mph, not 55."

b. Business Perspective

Preference for the 55 mph limit was more unequivocal among the "business" respondents than among "enforcement" respondents. Trucking and insurance industries and, to a lesser degree, auto dealers and the AAA each had an economic or advocacy stake in the 55 mph limit.

Respondents from all these groups have found that the fuel-conservation issue is more salient and more credible to the public than arguments for increased safety. The position of some respondents was that the public is not convinced about, or simply is not motivated by, safety benefits, and that without a fuel shortage the public would not be at all amenable to a lower limit:

"It's a geographical situation. In sparsely populated western states, safety is not as important, but fuel savings are the same in the West as in the East."  
(Trucking association respondent)

"[Insurance company's] policymaking group did support it for energy reasons. Support is still basically for energy reasons, not safety." (Insurance industry respondent)

"We know it's very hard to sell safety, so the fuel-conservation issue offers us an easy way to actually promote safety more effectively." (AAA respondent)

"[The 55 mph limit] is good for fuel reasons only. It's ridiculous on the interstate for safety." (Auto dealers association respondent)

Financial savings with lower fuel and maintenance costs were a strong incentive for truckers to support the 55 mph limit. Trucking companies can now point to concrete dollar differences between earlier and current expenditures

for fuel, tires, gears, and other repairs. Fewer accidents also reduce the cost of fleet maintenance:

"We are serious about the 55 for safety and fuel reasons. As fuel becomes more costly, it is an important factor. One company ran a test and found they saved \$2,000 by going 55."

"The association supports it wholeheartedly. Most trucking companies do. [They] get reductions in insurance premiums; maintenance and fuel costs are down. It's foolish not to drive 55."

On the negative side, trucking companies have had to make adjustments in their operations after the imposition of the 55 mph limit, because each interstate driver is limited to a 10-hour driving day. Comments by trucking-association respondents do indicate, however, that the costs or revenue losses caused by longer hauling times are more than offset by savings in maintenance, fuel, and accident-related expenses.

A reduction in accident rates has direct business implications for the insurance industry. Because the 55 mph limit is credited with the steady downward trend in accident rates (and, hence, insurance claims), respondents indicated that the industry would lobby very strongly against efforts to raise the limit. Although much of the publicity for the 55 mph limit is made in the name of fuel conservation, the following reactions from insurance respondents show a clear recognition that the safety benefits are "good for business":

"Any policy we endorse . . . reflects the necessities of our business. [The 55 mph limit has] had a tremendous impact on our insurance rates--not enough to keep up with inflation, but the accident rate has been down each year for the last three years."

"We can tell when it's being monitored or strictly enforced just by the claims we have to process. High speeds cost us a lot of money."

"We gave rebates to drivers because the facts backed highly increased safety--better than [a] 20 percent drop in accidents. Industry would like to keep it at 55 and would actively oppose an increase to 65."

The large increase in the number of speeding tickets that are issued as a result of the reduced speed limit has also had an impact on insurance-company practices in another way: the companies can no longer use speeding tickets as a basis for imposing higher rates on high-risk drivers. Because more people now

receive speeding tickets, this indicator can no longer be used to distinguish high-risk drivers from the rest of the driving population.

In considering the impact that highway-safety policies have on the insurance industry, one respondent warned that the relationship should not be understood in simple benefit and loss terms. In his viewpoint, optimizing a business advantage cannot and should not be the primary consideration in industry support for policies. To illustrate his point, he sardonically stated that since "profit is the reason for the existence of the company, in dollars and cents terms it is better to have a fatal accident than a serious injury."

The 55 mph limit in itself has not been a major concern for automobile dealers: "The speed limit did not dictate the buying habits of the public--the costs of gas did." Respondents did point out that the automobile market was changing, but there were no complaints that the reduced speed had affected overall sales or had any adverse impact on business. (Although not mentioned in any of the interviews, one possibility may be that public interest in cars with better gas mileage may have actually stimulated new-car, albeit smaller car, purchases.) One respondent noted that "high-performance cars don't sell as much anymore because of the 55." Since lower speeds are less demanding mechanically and structurally than higher speeds, it was also expected that car buyers would reconsider the value of certain costly but unusable car features. National policy on the 55 mph limit has been reflected, for instance, in the design of speedometers in new-car models: "Speedometers go up to 85 now. They used to be up to 120 mph. . . . Now 55 is on the right of the speedometer; [it] used to be on the left. This is psychologically better." Similarly, engine tuning in new cars has been geared to the new limit.

## 2. Assessment of Effectiveness

The question "How effective has the 55 mph speed limit been?" gave rise to different interpretations among special-interest respondents: Has the 55 mph limit been beneficial? Has it had an effect on driving speeds? Has it been accepted/supported by the public? The questions answered depended on whether the respondent had a positive or negative orientation toward the 55 mph limit. Favorable reactions tended to be based on safety considerations; arguments in behalf of the 55 mph limit stressed a reduction in accidents and fatalities, as well as a reduction in driving speed in general. Negative assessments tended to stress public resistance and noncompliance, and ineffective enforcement.

a. Demonstrated Safety Benefits

Statistics that pointed to an improvement in highway safety and fewer "traffic losses" were a major selling point for the 55 mph limit. Enthusiasm for the 55 mph limit on the basis of safety benefits, however, was found primarily among respondents with an informed and authoritative vantagepoint. The following comments are indicative of the endorsements based on declining accident and fatality rates:

"[The 55 mph limit has been] incredibly effective from a safety standpoint. It has reduced fatalities, the severity of injuries, and damage to automobiles, and has saved gas." (State police respondent)

"From a safety standpoint, it's been proven effective by the number of fatalities reduced." (Police chief respondent)

"It cut the number of fatal accidents and the severity of injuries even though the traffic volume increased." (Highway-safety department respondent)

"Last year was our lowest death rate per 100 million miles, which we attributed partly to the 55 mph limit. In 1979 we had 2.8 deaths per 100 million miles versus 3.5 in 1974 and 5.8 in 1968." (State police respondent)

"It is effective from a safety standpoint. It's saved lives and is seen as a contribution to society." (Bar association respondent)

An AAA respondent noted that the reduced limit has had an impact on secondary roads as well as on interstate highways. He specifically attributed the lower accident rates to the fact that reduced highway speeds facilitated driving compliance with city speeds. For example, when entering a 35 mph zone from a 75 mph zone, he felt that drivers tended to go approximately 50 mph "because 35 seemed as if [they were] stationary." Because the difference between 55 and 35 was less extreme, he felt that drivers now tended to drive 35 mph in the city.

b. Slower Traffic Speeds

The connection between slower speeds and fewer and less-severe accidents was not always explicitly mentioned by respondents. In a number of instances, the 55 mph speed limit was considered effective simply because it led to a general decrease in driving speeds. A chief of police noted, "The mandate is effective. People [have] slowed down." The same point (an observation on

how the 55 mph limit has affected driving habits) was also made by other respondents:

"It has lowered the average rate of traffic." (Highway-safety department respondent)

"More people are driving slower." (AAA respondent)

"People have slowed down." (Insurance industry respondent)

"The public drives slower now." (ACLU respondent)

Strict adherence to a 55 mph limit did not appear to be a critical criterion for these respondents; these comments imply that the reduced limit nevertheless has had a significant and broad-based impact on driving behavior, and that the result has been an overall decrease in highway speeds.

c. Public Resistance

Special-interest respondents who felt that the 55 mph speed limit has not been effective were likely to cite public objection to the limit to explain their negative assessment. A bar-association respondent made the point that "the public has not accepted it at all"; similar reactions were voiced by state police ("People are not buying 55 mph.") and by auto dealers ("The public doesn't like it."). In this context, public acceptance was defined in terms of voluntary compliance, and the 55 mph limit was considered ineffective because it generally is not obeyed and because it has not been part of the public's driving routine. In the opinion of some respondents, the 55 mph limit is "irrelevant" to drivers and has not had much impact on driving speeds:

"The mandate hasn't caused people to slow down. It's totally ineffective." (AAA respondent)

"We haven't convinced [the public] that it's 55." (State police respondent)

"The public doesn't observe it at all." (Bar association respondent)

The extent to which compliance depends on strict enforcement was also used as an indicator of public acceptance. Two state-police respondents played out the thinking of drivers who themselves are not committed to the 55 mph limit:

"It is worth it to take a chance. You're unlikely to get caught. There are only 300 state police at once and one million drivers, so speeding is a good bet."

"The public hasn't accepted it. They've slowed down some but only because of enforcement--not because they believe it's right or safer or costs less, but because it takes points and dollars to exceed 55."

In the opinion of another state-police respondent, economic benefits are the only motivation:

"Citizens do not accept it. Compliance is only because of gas prices. This is the only means of getting compliance from a cynical public who will only slow down to save money and for no other reason."

Similarly, from the vantagepoint of two AAA respondents, enforcement of an unpopular law is a futile and expensive exercise: "There are not enough police cars in the world to enforce it. The mandate has no effect; AAA has been concerned about the money spent on 55 enforcement."

A highway-safety respondent offered the following explanation for public resistance, as well as for resistance among enforcement officials:

"The feds gave the mandate, and compliance was up to the states. We didn't have public support when we initiated this in [State]. The feds made a mistake. They pushed a new law on the nation before public acceptance was there. I don't go for laws unless there is about 80 percent of the public [that] support it. You should educate the public when the laws are under development; then when it's passed, there is more public acceptance."

#### d. Other Issues

In evaluating the 55 mph speed limit, respondents identified several other problems. First, the reduced speed limit could itself create safety hazards. According to a trucking-association respondent, there is evidence of a "new breed of accidents" that are caused by boredom and by drivers falling asleep at the wheel. With the reduced speed limit, there has been an increase in the number of people who fall into the "speeder" category, and also a wider disparity between drivers who speed and those who drive at or below the speed limit. The "great gap between abusers and abiders" causes especially dangerous highway conditions. A second set of reservations centered around the merits of the reduced speed limit. Skepticism about whether the 55 mph limit is "worth it" was expressed by a police chief: "It's not that much safer than 65 and not

that much more economical, either. [Furthermore], the roads are built for 90 mph." The value of the 55 is particularly unconvincing for segments of the country with a low population density: "A large part of the problem is that there is so much room between cities in [State]. Here there are great stretches of road, and it's safe to drive faster" (Auto dealers association). "A 355-mile stretch of nothing also puts you to sleep" (ACLU). Finally, a state-police respondent was concerned about the long-term effects of an unacceptable and unenforceable speed limit: "Now, drivers are setting a bad example by showing their kids that cheating by 10 mph is all right. . . . We have no idea how the newer generation of drivers will regard speed limits."

### 3. Summary

Special-interest respondents associated with "implementation and enforcement" groups and "business interest" groups tended to be quite explicit in supporting the 55 mph speed limit in principle. However, from the vantagepoint of the enforcement respondents in particular, low levels of voluntary public compliance make the reduced limit unenforceable and hence undesirable. Many of these respondents believed that an unenforced law had serious implications for enforcement efforts in general: it has undermined the credibility of police officers; it has placed police in an unpopular position; and, because extra manpower has had to be deployed to this function, it has reduced enforcement efforts in other areas. These reactions suggest a two-pronged effort: engineering voluntary public compliance with the 55 mph limit, and using more stringent sentences for speeding violations.

The reduced speed limit was clearly recognized by insurance-industry and trucking-association respondents as being "good for business." Strong resistance could be expected from these industries if the speed limit were to be raised.

## II. SPEED DETECTION AND DETERRENCE

Four speed-detection methods were included in the study: radar, Vascar, the speedometer method, and an automatic speed-enforcement method.

The first three methods are currently in use, and we can expect that most drivers are familiar with them or are at least aware of their use in speed detection. The automated speed-enforcement device (ASED) method is a newer and more innovative approach; the process entails using an automated-detection system which takes a photograph of the license plate of the vehicle and imprints on the photograph the vehicle's speed, the location, and the time of day.

Even though radar, Vascar, and the speedometer method are familiar and widely used devices, all three methods remain controversial. They are included in this study to identify the extent of, and the reasons for, public support or opposition to them. Further, public reaction to these methods will also provide an important point of comparison in examining reactions to the ASED method.

### A. FOCUS GROUP DISCUSSIONS

The following descriptions of the speed-detection countermeasures were presented during the focus-group discussions:

The use of radar to detect speeding.

A police officer points a radar unit (device) at a car suspected of speeding. Radio waves are reflected off the car, and the actual speed of the car is indicated on the radar unit.

The use of Vascar to detect speeding.

The police officer measures a particular section of a highway and registers the distance between those two points into a Vascar unit. When the officer sees a car suspected of speeding, he or she clicks a switch on the unit when the car is at the first point and again when the car passes the second point. The unit indicates how fast that car was going.

The use of a speedometer to detect speeding.

Police follow a car suspected of speeding, keeping a constant distance between them. Police follow the car for a specified distance, checking their own speedometer to determine how fast that car is actually going.

The use of a speed measuring and photography device to detect speeding--for example, one of them is called Orbis III.

This device operates by itself, day or night, and does not require a police officer to operate it.

First, electric sensors measure the time it takes for a car to pass through two points on a highway. The speed is recorded on a meter. A camera is set to go off if a car is exceeding the speed limit. If a car is speeding, a camera photographs (1) the meter readings (date, time of day, speed), and (2) either the front or the back of the car, showing the license plate number.

Discussions of speed countermeasures were conducted with four general-public groups of participants 18 to 29 years old, with four general-public groups of participants 30 years and older, and with four special-interest groups.

#### 1. Radar and Vascar

Discussion about radar and Vascar was much more limited than the automated speed-enforcement device (ORBIS III was the specific example), partially because the automated method was so controversial, and, by comparison, radar and Vascar appeared to be relatively mundane. Thus, there was a general tendency to group them as the two acceptable speed-detection methods.

The prevailing attitude was that radar is an acceptable component of the standard procedures for enforcing speed laws, and that it did not require adjusting to something new. The general public's acceptance of radar was commented on by one expert, who observed that "its legitimacy and accuracy is accepted." As one Seattle discussant noted, radar is acceptable because "we already have it." Another Seattle discussant added, "Radar is a beautiful system. They tell you in advance, and people go slower there, and they stay slow for quite a while." Some discussants went so far as to say that radar is "the best way" to detect speeders, and that it is "foolproof." The expectation that using an existing countermeasure would be economical reinforced favorable attitudes. Thus, one discussant said that radar is "best because it is innocuous and we already have it, and it won't have any implementation costs."

There was limited criticism of the hidden use of radar. For example, one Denver discussant felt that "hidden radar is unacceptable."

Vascar generated very little special comment. One Trenton discussant said, "I prefer the first two [radar and Vascar] because they are foolproof." Because Vascar was an unfamiliar concept to most discussants, it is instructive

to compare the discussants' reactions toward Vascar to the highly negative reactions toward the equally unfamiliar concept of ORBIS III. Whatever doubts discussants may have expressed about Vascar, they clearly were of much less magnitude than those related to ORBIS III. The only concern that was mentioned was with respect to the skill needed to operate Vascar. One Seattle expert expressed doubt: "The clicking times leave a lot to human error." A law-enforcement official responded, "Without training, a well-motivated officer . . . can mess it up terribly. . . . [However], it is a very accurate instrument if it is operated properly--that is, as accurate as the perception of the person checking the buttons."

The general public also favored radar and Vascar over ORBIS III because they thought it was less expensive. They felt that ORBIS III would be more expensive both in the initial investment in equipment and in administrative costs. One young Cincinnati discussant expressed concern about "tax dollars for mailings and computers." Only among law-enforcement officials was there any mention of the possible efficiencies that might be gained from ORBIS III: "It's the only answer. It frees the law-enforcement officer for other duties, and then this becomes an administrative-type enforcement tool."

## 2. Speedometer Measurements

The major issue in all discussions of the speedometer-measurement detection method was its deterrent effect. The physical presence of the patrol car and the personal contact with the police officer were said to have a deterrent effect upon all drivers on the road, and not only upon the driver who is stopped. As one young Cincinnati driver put it, "People tend to slow down with a policeman in view." A middle-age Denver driver concurred that a policeman in view was an effective deterrent "because you slow down," although it was not necessarily the most effective detection countermeasure in itself. Another discussant agreed: "The presence of a police officer is a deterrent." Similar comments were the following:

"Being stopped by the police is a deterrent to speeding. It definitely slows you down for quite a while."

"I slow down when I see a police car."

On the other hand, issues of accuracy and fairness made the acceptability of this method questionable. One young Atlanta discussant felt very strongly about these issues: "This is a joke. There is no way you could accurately tell how fast someone is going by using a speedometer. Speedometers

are often off by 5 mph." A middle-age Seattle discussant voiced a similar opinion: "This is [the method] most subject to question. People can argue the ticket." In addition, a young discussant from Cincinnati commented, "It's too dependent on the police officer's word." However meticulous the calibrations of patrol-car speedometers may be, the drivers questioned the inherent accuracy of the method, as well as what they thought to be a subjective judgment about how fast the suspected car is traveling.

Another concern that was expressed in a number of the groups was the potential hazard in having the patrol car keep pace with the speeding car:

"If a police car follows a speeder, this may lead to a high-speed chase. This is a bad method."

"Now there are two cars speeding."

A Cincinnati legal official agreed: "Getting two people going 80 mph is a very dangerous situation." A slightly different version of this attitude was the following comment: "Police following causes people to fixate on the police and go into a telephone pole."

As illustrated by the above comments, reactions to speedometer pacing as a speed-detection device were consistently negative. Positive reactions focused not on detection, but on the value of police presence.

### 3. ORBIS III (An Automated Speed Enforcement Device)

Reactions to ORBIS III, as expressed in the group discussions, largely reflected two conflicting attitudes--the expectation that ORBIS III would be an effective detection device, and the very strong antipathy to it because it invades privacy. Two other types of reactions were expressed: doubts about its deterrent value (as distinct from its detection effectiveness), and concerns about its cost.

There was little question in the discussions as to the effectiveness of ORBIS III in detecting speeders. Those who explicitly stated it would be effective for this purpose were impressed by the apparent incontrovertibility of its documentation: "I like ORBIS . . . because they have more proof." A comment by a middle-age Seattle discussant indirectly expressed the same feeling: "If they put this in places where you do tend to go a little faster, this would be a great moneymaker." Another discussant added the observation that ORBIS III "would be good in high-accident areas."

The fact that detecting speeders with ORBIS III and the subsequent ticketing do not require the presence of a police officer led some discussants to think it was fairer than the other detection methods: "A lot of people get away with speeding and don't get caught. Others get caught very easily. This is more consistent and fair." A similar comment was made by an Atlanta discussant: "I wouldn't say that I like this one, but I think it would be most effective because it wouldn't just pick up one person and let another one go. It would [catch] everybody." In this vein, it is important to note that the accuracy of ORBIS III measurements was not in question, which is in marked contrast to the accuracy of speedometer readings. Whatever disdain there may have been for machines, automated devices were respected for their accuracy.

The apparent inescapability from ORBIS III, while leading to expectations of effectiveness, was also the source of intense negative reactions. Its "all-seeing eye" made some discussants think that it would be as if "Big Brother" were watching them:

"It makes me uncomfortable and uneasy to have the government watching all the time."

"I hate this. I don't need anything to increase my paranoia . . . to think they are watching me."

"In a democratic society like ours, I'm not sure the whole thing is acceptable. It's just too much like the government is spying on you."

"I don't think the police should use electronic warfare against the citizens. 1984 isn't that far away. That's what it amounts to."

One Atlanta discussant went so far as to say, "People would shoot them down." Some questioned the legality of ORBIS III: "It will never get past the courts," one discussant stated. Another discussant added the comment, "To be effective, it needs public acceptance, and this will be up to the courts terribly."

The photographic documentation provided by ORBIS stirred strong feelings: "The picture is objectionable. The government has used information in lots of ways before." In addition to the possible misuse of photographs, there was concern about the invasion of privacy per se: "It will ruin a lot of marriages." The point is that the discussants were not necessarily concerned that their personal lives would be exposed to public scrutiny, but that the government simply has no right to possess such information--not even to control speeders: "Speeding is within personal laws of safety. People don't mind

getting caught if they are caught fair and square. ORBIS III is not playing within the rules of fairness." Thus, issues of fairness and privacy reinforced each other to generate an intense negative reaction to ORBIS III.

In contrast to its value for detection, the deterrence effectiveness of ORBIS III was questioned. This is important because many of the discussants defined effectiveness primarily in terms of deterrence: "The point is not how many tickets can I give you as how can I get you to slow down. . . . This is not true for ORBIS III. . . . The police don't really want to give you tickets. They want you to slow down and be careful." However, other discussants thought that evidence of speeding generated by ORBIS III would be difficult to dispute, and that this could give it deterrent value: "If ORBIS was publicized, it would work better than having police zoom in and out." A similar comment was made by a young Cincinnati discussant: "But with ORBIS III you don't know where it's at, so you will always slow down." More typical, however, was the opinion that ORBIS III would have little deterrent value, however effective it might be in detecting speeders. In the words of a Trenton discussant, "Being stopped by the police is a deterrent to speeding. . . . If you see something in the mail a few days later, I don't think it would have the same effect." A Cincinnati discussant made the same point with these words: "With this ORBIS III, you're photographing the person when they're speeding, but not catching them right then. The effect is softened by that time." A concurring opinion was the following: "The cash-on-the-spot experience--you really get leery, feel more of a pain. Rich people can just pay by mail."

Another issue focused on the problem of driver versus owner responsibility. As one Cincinnati expert observed, "Without a picture of the driver, you just don't have a case." A Trenton discussant made the same point by asking, "How do they know who is driving?" A young Cincinnati driver, however, felt that "[the owner is] responsible for [his] car. That should be good enough." Still others felt that determining responsibility "would lead to a lot of bureaucracy."

A final issue dealt with man versus machine. A number of discussants felt that the impersonal machine could not take into account extenuating circumstances and equity:

"It doesn't give you an opportunity to explain."

"What if you had to speed up to avoid an accident?"

"Don't you think justice should be worked into this? Without the factor of people in there, machines are very cold; they make mistakes. They don't care."

"You can't break everything down into black and white. . . . Suppose you were rushing someone into the hospital?"

"It would take away your basic right to cross-examine your accuser."

In the man versus machine battle, the expectation was that people would always find a way to circumvent the machine. One discussant suggested that "people would put mud on their license plates." A Seattle expert observed that "if you put this into effect on a highway, people would move onto county roads." A counterargument was that ORBIS III could have value in specific types of situations--for example, "on a rain-slicked portion with speed reduced to about 40" or in "high-accident areas where you post signs that photographic controls are in effect." A Cincinnati expert commented, "How long is it going to take people to find some way to beat it if you try to take their photograph. . . . Fuzz Buster is an example. People are paying anywhere from \$50 to \$75 trying to get something to beat radar beams."

## B. GENERAL PUBLIC SURVEY

The following descriptions of the four speed-detection methods were used during the general-public survey interview.

There are a number of different ways police officers can check whether a car is going faster than the speed limit. Some of them you may know, while others will be new to you.

One way is to use radar. For example, when a police officer uses a radar unit he may point it at a stretch of highway or a specific car. Radio waves are reflected off a car and its speed is indicated on the radar unit.

Another way for police to check whether a car is speeding is called Vascar. A specially trained police officer first measures a particular section of a highway and registers the distance into the Vascar unit. When the officer sees a car he thinks is speeding, he clocks how long it takes the car to go that distance by clicking a switch on the unit when the car begins that section of the highway, and again when the car reaches the end of that section. The Vascar unit then calculates how fast the car was going.

A third way for police to check whether a car is speeding is for them to patrol a highway, and when they see a car they think is speeding to follow it--keeping a constant distance between them. They check their own speedometer to determine how fast that car is actually going.

A fourth way of checking for speeders uses an Automatic Speed Enforcement Device. These devices operate by themselves, day or night, and do not require a police officer to operate them once they have been set up. They have meters which show the speed of cars that pass them, and also a camera. If a car is speeding, the camera automatically takes a picture of both the meter--showing the speed, date and time of day, and also the car--showing the license plate. A ticket for speeding would be sent to the car's owner.

The focus-group discussions of the speed-detection countermeasures centered on three evaluation criteria. Assessment of these countermeasures revolved around their perceived degree of accuracy, effectiveness, and fairness. Specifically, the credibility, and hence acceptability, of a speed-detection method was based on whether it was perceived to be a valid, accurate way to measure speed. The speed-detection method also had to be effective--not so much in actually apprehending speeders as in successfully detering speeding per se. The third standard used to gauge acceptability was whether the measure could be equitably implemented: Would human error undermine its fairness? Is it an intrusion on personal rights?

In addition to these three criteria, another concern was raised specifically with respect to the photographic component of the ASED method. On the positive side, of course, was the fact that the photograph offers incontrovertible evidence; however, the picture-taking was also considered to be a device of an overly watchful government and an intrusion into a driver's private domain. Another issue raised with respect to the ASED method was the proper disposition of the penalty when the owner is not the driver and the driver cannot be identified. Public opinion against owner liability for fines incurred by another driver of the car would thus pose an operational constraint in implementing the ASED.

An important issue surrounding the support of or opposition to speed-detection measures was the public's attitude toward and compliance with the 55 mph speed limit. From one standpoint, persons who were highly committed to the 55 mph speed limit (i.e., who adhere strictly to the limit and have confidence in its effectiveness in reducing accidents) may have been more favorable towards very rigorous speed-detection methods. On the other hand, individuals who tend to drive within a "safe" speeding range and who do not adhere strictly to the speed limit may have been more favorable toward minimizing the impact of speed-detection methods. Further, acceptability may be a function of the relationship between public attitudes toward driving speed and perceptions of how accurate, effective, and fair a speed-detection method is.

In the first section below, the acceptability of speed-detection methods is examined in relation to certain demographic variables. The following question is addressed:

- Are speed-detection methods differentially acceptable across various population segments?

The second section examines the relationship between the acceptability of, and attitudes toward, certain attributes of the countermeasures. The following questions are addressed:

- How do speed-detection methods compare with respect to public perceptions of accuracy, effectiveness, and fairness?
- Are perceptions of accuracy, effectiveness, and fairness associated with certain demographic characteristics of drivers?

- Is acceptability associated with how the speed-detection methods are evaluated along the accuracy, effectiveness, and fairness dimensions?

The third section focuses on the automated speed-enforcement method and examines public response to two special issues raised by this method: (1) photographing the driver and the license plate, and (2) owner liability for fines incurred when someone else is driving the car. The following questions are addressed:

- What are public attitudes toward these two issues?
- Is support or rejection of these two features related to the acceptability of the ASED method?

The fourth section examines the acceptability of speed-detection methods with respect to attitudes toward the 55 mph speed limit. The following question is addressed:

- Does differential acceptability across speed-detection methods occur with high versus low commitment to the 55 mph speed limit?

#### 1. Acceptability of Speed Detection Methods and Variations by Demographic Subgroups

When asked about the four speed-detection methods, the majority of both drivers and nondrivers favored the use of radar, Vascar, and the speedometer method (see Table II.1). (Radar, favored by 70 percent of the drivers, received the largest share of support for a particular speed-detection method.) In contrast, reactions to the ASED method tended to be negative. In the sample of drivers, 59 percent opposed the use of ASED. The much lower degree of public support for the ASED method may reflect the fact that it was seen as both new and unfamiliar, or that the public objected to the specific features of the countermeasure.

An examination of acceptability across methods indicates that the reactions to the methods were not the result of a general positive or negative stance toward speed detection per se. Rather, it appears that respondents were selectively favoring only certain methods. Favorable reactions to all four methods occurred only for 15 percent of the respondents; another 18 percent favored all three of the more conventional methods (radar, Vascar, and speedometer). We also checked on whether other sets of methods were favored, and found that respondents were quite evenly spread across different

TABLE II.1  
ATTITUDE TOWARD USE OF SPEED DETECTION METHODS,  
FOR DRIVERS AND NONDRIVERS

Attitude	Speed Detection Methods			
	Radar (Q. 3-11)	Vascar (Q. 3-13)	Speedometer (Q. 3-15)	ASED (Q. 3-17a)
<b>Drivers</b>				
Favorable	69.6	62.7	65.6	39.9
Unfavorable	28.8	35.0	33.9	59.0
Undecided	1.6	2.3	0.5	1.1
Total	100.0 (431)	100.0 (431)	100.0 (430)	100.0 (429)
<b>Nondrivers</b>				
Favorable	77.4	75.5	88.7	56.6
Unfavorable	20.7	18.8	9.4	43.4
Undecided	1.9	5.7	1.9	--
Total	100.0 (53)	100.0 (53)	100.0 (53)	100.0 (53)

combinations of methods. For example, after the radar-Vascar-speedometer combination, the next most frequently favored combination was radar and the speedometer method (9 percent). In contrast, at the other end of the spectrum, only 3 percent of the respondents opposed all four methods.

a. Region

When reactions to each of the speed-detection methods are examined across regions of the country, there are no differences in acceptability (see Table II.2).

TABLE II.2  
PERCENTAGE OF DRIVERS, BY REGION,  
WHO FAVORED EACH SPEED DETECTION METHOD

Region	Speed Detection Methods			
	Radar (Q. 3-11)	Vascar (Q. 3-13)	Speedometer (Q. 3-15)	ASED (Q. 3-17a)
NE (N=93)	68.8*	65.9	66.3	38.0
South (N=141)	76.8	61.9	62.6	44.0
MW (N=110)	68.8	67.3	61.5	40.0
W (N=87)	65.1	61.2	75.9	37.9

\* This indicates that 68.8 percent of the 93 drivers surveyed in the Northeast were in favor of radar; 31.2 percent were either opposed or undecided.

b. Sex

The reason radar was the most acceptable speed-detection method stemmed to some extent from the very sizable support given to it by females (see Table II.3). Over 75 percent of the female drivers responded favorably to radar, compared to 62 percent of the male drivers. A similar though less pronounced pattern exists for Vascar. With respect to the speedometer and ASED methods, the percentage of males and females in favor of their use was fairly similar.

TABLE II.3

PERCENTAGE OF DRIVERS, BY SEX, WHO  
FAVORED EACH SPEED DETECTION METHOD

Sex	Speed Detection Method			
	Radar <sup>a/</sup> (Q. 3-11)	Vascar (Q. 3-13)	Speedometer (Q. 3-15)	ASED (Q. 3-17a)
Male	61.8 (204)	58.3 (204)	66.5 (203)	36.6 (202)
Female	76.7 (227)	66.5 (228)	64.8 (227)	42.7 (227)

<sup>a/</sup>p < .001

c. Age

The acceptability of radar, Vascar, and the speedometer method did not vary by age group (see Table II.4). The relationship to age was quite strong,

TABLE II.4

PERCENTAGE OF DRIVERS, BY AGE, WHO  
FAVORED EACH SPEED DETECTION METHOD

Age	Speed Detection Methods			
	Radar (Q. 3-11)	Vascar (Q. 3-13)	Speedometer (Q. 3-15)	ASED <sup>a/</sup> (Q. 3-17a)
Less than 30 (N=130)	64.6	60.8	60.0	29.2
30-44 (N=144)	70.1	63.2	65.3	34.7
45 and older (N=150)	73.3	64.0	70.7	53.3

<sup>a/</sup>p < .001

however, for the ASED method: the younger the driver, the less likely he or she was to support this speed-detection method. Among drivers age 18 to 29, only 29 percent favored using the ASED method. This finding is consistent with a pattern discerned from the focus-group discussions--that younger age groups were more expressive than older age groups in their concern about surveillance devices and government controls. While the extent of support for the ASED increased sharply for drivers over age 45, it nevertheless did not approach the support given to the other speed-detection methods.

d. Education and Income

No significant differences were found by educational or income level in the acceptability of radar, Vascar, or the speedometer method (see Table II.5). However, the results do show a relationship between educational level and support for ASED: support declined as educational level increased. In particular, drivers with one or more years of college were far less likely to favor ASED (31.7 percent in favor) than drivers who were not high school graduates (48.7 percent in favor). This could be due to the fact that the drivers with higher educations may have had more technical sophistication and thus a greater understanding of the ASED method. Another explanation is that

TABLE II.5

PERCENTAGE OF DRIVERS, BY EDUCATIONAL LEVEL AND INCOME LEVEL, WHO FAVORED EACH SPEED DETECTION METHOD

	Speed Detection Methods			
	Radar (Q. 3-11)	Vascar (Q. 3-13)	Speedometer (Q. 3-15)	ASED <sup>a/</sup> (Q. 3-17a)
Education				
Less than high school (N=74)	71.6	67.6	70.3	48.7
High school graduate (N=170)	67.7	60.6	62.4	44.7
Any college or more (N=180)	71.1	63.3	66.7	31.7
Income				
Less than \$12,000 (N=93)	74.2	64.5	68.8	47.3
\$12,000 or more (N=308)	67.2	62.3	64.9	38.6

<sup>a/</sup>p = .01

the drivers with higher educations were more likely to hold values and viewpoints about government intervention that are opposed to the specific technical features of the ASED. Although patterns of response by educational level are similar to those within income groups, support for the ASED method was not related to a driver's family income level.

2. Attitudes Toward Certain Characteristics of Speed Detection Methods and Relationship of These Attitudes to Acceptability

a. Accuracy

Most of the drivers hedged on their judgments about the accuracy of the speed-detection methods; none of the methods was regarded as exceptionally accurate (see Table II.6.). Speed-detection methods tended to fall into the category of "fairly" accurate, which can be interpreted to mean that the method is adequate, but has a certain margin of error. Although automated speed detection was regarded as the least acceptable of the four methods, it was felt to be more accurate than the other three methods in detecting speed. Further, when the "very accurate" and "fairly accurate" categories are combined, ASED ties with radar (the most widely acceptable method) as being an accurate way to detect speeding. Respectively, radar and the ASED were considered accurate by 77.0 and 77.9 percent of the drivers. The speedometer method was the most likely to be rated as inaccurate, although the difference from the other methods is quite small.

While nondrivers rated each of the speed-detection methods higher in accuracy than did drivers, the overall pattern of perceived accuracy is similar. Nondrivers also considered ASED to be a more accurate way to detect speeding than the other three methods.

(Data on perceptions of accuracy by demographic characteristics are presented in Appendix Tables A.1 to A.5.)

Radar, which was the most acceptable of the speed-detection methods, was not credited with being very accurate to any greater extent than the other methods. However, females were more likely to consider radar accurate, especially in the "fairly" accurate category, while males were more likely to consider it inaccurate. In that females were much more favorable about the use of radar, accuracy appears to have been a factor in their support for this method. Perceptions of the accuracy of radar also varied with age: compared to drivers under age 30, older drivers were more likely to view radar as very accurate, and less likely to view radar as inaccurate. Perceptions of the

TABLE II.6

PERCEIVED ACCURACY OF SPEED DETECTION METHODS,  
FOR DRIVERS AND NONDRIVERS

	Speed Detection Methods			
	Radar (Q. 3-12a)	Vascar (Q. 3-14a)	Speedometer (Q. 3-16a)	ASED (Q. 3-18a)
Drivers' Perceived Accuracy				
Very accurate	21.6	21.7	22.8	29.9
Fairly accurate	55.4	47.5	48.4	48.0
Inaccurate	17.9	21.2	27.4	19.1
Undecided	5.1	9.6	1.4	3.0
	100.0 (431)	100.0 (429)	100.0 (430)	100.0 (425)
Nondrivers' Perceived Accuracy				
Very accurate	34.0	28.3	30.2	41.5
Fairly accurate	39.6	37.7	41.5	32.1
Inaccurate	15.1	17.0	22.6	18.9
Undecided	11.3	17.0	5.7	7.5
	100.0 (53)	100.0 (53)	100.0 (53)	100.0 (53)

accuracy of radar did not differ across either regions or education and income groups.

Distributions of the degree of accuracy attributed to Vascar were relatively similar for all of the demographic segments considered. With the exception of regional differences, the perceptions of accuracy with respect to both the speedometer method and the ASED also did not vary by demographic characteristics. One regional variation occurred in the Midwest, where there was a greater tendency to consider the speedometer method inaccurate. In addition, drivers in the Northeast were far more likely to find the ASED inaccurate.

b. Effectiveness

Drivers were uncertain about the effectiveness of any of the speed-detection methods in deterring speeding (see Table II.7). Radar, however, did rank much higher than the other methods: 41.6 percent of the drivers felt that radar serves as a very effective deterrent. Although a smaller proportion of drivers rated Vascar as very effective, when the two effectiveness categories are combined the ratings for Vascar, the speedometer method, and the ASED are comparable.

TABLE II.7

PERCEIVED EFFECTIVENESS OF SPEED DETECTION METHODS,  
FOR DRIVERS AND NONDRIVERS

	Speed Detection Methods			
	Radar (Q. 3-12b)	Vascar (Q. 3-14b)	Speedometer (Q. 3-16b)	ASED (Q. 3-18b)
Drivers' Perceived Effectiveness				
Very effective	41.6	24.9	35.7	34.3
Fairly effective	43.5	46.4	40.3	38.7
Ineffective	14.0	22.4	22.8	24.7
Undecided	0.9	6.3	1.2	2.3
	100.0 (430)	100.0 (429)	100.0 (429)	100.0 (426)
Nondrivers' Perceived Effectiveness				
Very effective	47.2	30.2	37.7	43.4
Fairly effective	30.2	37.7	35.8	41.5
Ineffective	20.8	18.9	18.9	13.2
Undecided	1.9	13.2	7.5	1.9
	100.0 (52)	100.0 (53)	100.0 (53)	100.0 (53)

Nondrivers, while only indirectly affected by the speed-detection methods, were more likely than drivers to find each of them very effective. In addition to this overall higher level of confidence in the effectiveness of the methods in deterring speeding, it is noteworthy that when the two effectiveness categories are combined, nondrivers were somewhat more likely to rate the ASED as more effective than radar.

(Data on perceptions of effectiveness by demographic characteristics are presented in Appendix Tables A.1 to A.5.)

Male and female reactions to the effectiveness of radar, although not significantly different, are of interest because they were contrary to the pattern previously noted for radar--that females were far more favorable toward radar and more likely to rate it as more accurate. However, on the effectiveness dimension, males were more likely to rate radar as very effective. One possible explanation is that males may have a greater tendency to speed and hence to be stopped, via radar, more often, thereby finding the method more of a constraint on their highway speed.

Regional differences in the perceived effectiveness of the speed-detection methods existed for both radar and the ASED, although no overall pattern seems to emerge. Drivers in the Northeast were more likely to rate

radar as very effective (48.4 percent). The largest proportion of "ineffective" responses for radar came from the Midwest (20.9 percent). Different perceptions about the effectiveness of the ASED were evident only between the "fairly effective" (found primarily in the South) and the "ineffective" (found primarily in the West) categories.

The extent to which both radar and Vascar were considered effective was related to the age of the driver. For radar, the differences occurred primarily on the positive side of the scale, between "very" and "fairly" effective. Over half of the older drivers rated radar as very effective; younger drivers predominantly thought that radar was only fairly effective. For Vascar, older drivers were also more likely to rate it as very effective, but younger drivers accounted for a large proportion of the "ineffective" responses. This pattern dovetails with the relationship between the effectiveness of Vascar and educational level: higher educational level was clearly associated with ratings of Vascar as less effective or ineffective.

The extent to which both radar and Vascar were viewed as effective methods also varied by income level. For both of these methods, greater effectiveness ratings were given by drivers with family incomes of less than \$12,000.

c. Fairness

The question of fairness, or equity, is intended to identify the extent to which the particular methods were regarded as legitimate approaches to speed detection. During the focus-group discussions, a method was considered unfair on the basis of perceived biases in implementation, the inability of the method to take mitigating circumstances into account, and objections to not being forewarned. With respect to radar, Vascar, and the speedometer method, respondents were asked whether the method was a fair way or an unfair way to check a car's speed. A comparable question for the ASED, reflecting a concern specific to that countermeasure, was whether the use of the automated device was an invasion of privacy.

Radar, Vascar, and the speedometer method were considered fair by almost three-quarters of both drivers and nondrivers (see Table II.8). Whatever reservations the respondents may have had with respect to the efficacy of these three methods, there is a strong indication that these strategies represented appropriate, if somewhat inadequate, ways to deal with speeding. The findings are quite different for the ASED method. On the fairness/invasion-of-privacy dimension, ASED was clearly the least acceptable of the four methods: 53.3

TABLE II.8

PERCEIVED FAIRNESS/INVASION OF PRIVACY OF  
SPEED DETECTION METHODS, FOR DRIVERS AND NONDRIVERS

Fairness	Speed Detection Methods			Invasion of Privacy (Q. 3-18c)	ASED
	Radar (Q. 3-12c)	Vascar (Q. 3-14c)	Speedometer (Q. 3-16c)		
Drivers					
Fair	74.2	68.0	70.8	Is Not	41.0
Unfair	22.6	28.0	28.5	Is	53.3
Undecided	3.2	4.0	0.7		0.7
	100.0	100.0	100.0		100.0
	(430)	(428)	(428)		(424)
Nondrivers					
Fair	75.0	75.4	79.2	Is Not	50.9
Unfair	23.1	18.9	20.8	Is	49.1
Undecided	1.9	5.7	—		--
	100.0	100.0	100.0		100.0
	(53)	(53)	(53)		(53)

percent of the drivers and 49.1 percent of the nondrivers considered the ASED to be an invasion of privacy. The fact that the license plate and the driver are photographed without the driver's knowledge apparently was an objectionable point for a sizable proportion of the drivers. The issue still remained as to whether the photographic component and, consequently, the possible invasion of privacy were considered justifiable (the findings on that question are covered in Section 3 below).

(Data on perceptions of fairness by demographic characteristics are presented in Appendix Tables A.1 to A.5.)

The extent to which drivers considered radar to be fair varied by sex. More females (83.3 percent) than males (64 percent) considered radar to be fair. As noted in the section on effectiveness, the most apparent explanation for this is differential male/female experience with respect to speeding and speed detection.

Opinions about whether the ASED is an invasion of privacy varied by both age and the level of education. Considering the ASED to be an invasion of privacy was more likely within the younger age groups, even though almost half of the drivers over 45 also found it to be an invasion of privacy. The same pattern exists for educational level--privacy was more likely to be an issue as the level of education increased.

d. Assessment Factors Related to Acceptability

For each of the speed-detection methods, there is a direct relationship between its perceived degree of accuracy, effectiveness, and fairness and the acceptability of the method (see Table II.9). Each relationship is significant at  $p < .001$ . The proportion of drivers in favor of each method progressively increased with increased perceptions of its accuracy, effectiveness, and fairness. Although there was a strong relationship for all four methods, the rate of acceptability for the ASED remained substantially lower, even among drivers who rated it as very accurate, very effective, and fair (i.e., not an invasion of privacy).

The three criteria appeared to have a differential bearing on the acceptability of radar, Vascar, and the speedometer method in terms of the relative impact of negative assessments of acceptability. On the accuracy dimension, ratings of only fairly accurate did not detract very much from its acceptability, whereas inaccuracy was almost invariably linked to its unacceptability. A similar pattern exists for the fairness rating: perceptions of unfairness made acceptability very unlikely. That a speed-detection method had to be effective in deterring speeding, however, was apparently not as stringent a demand on the part of drivers. Radar, in particular, had a high level of acceptability almost regardless of its effectiveness: almost half (48.3 percent) of the drivers who rated radar as ineffective nevertheless favored its use. Effectiveness seemed to have been a factor primarily with respect to the ASED, for which it appeared to be a necessary, but not in itself a sufficient, condition for acceptability.

3. Attitudes Toward Photographing the Car and Toward Owner Liability

One characteristic that distinguishes the ASED from the other methods is that the ticket is not issued directly to the driver. Instead of stopping the car and linking the violation to the particular driver of the car, under the fully automated version of the ASED the ticket is sent to the car's owner. The controversial issue is whether the owner should be responsible for a fine incurred when someone else is driving the car. The question asked of respondents in this study was intended to gauge perceptions about owner liability; the data are relevant both in relation to acceptability and as a guide for implementation.

Respondents generally were not receptive to the idea of owner responsibility. Of the drivers, 80.6 percent felt that the owner should not be responsible (see Table II.10). Further, this position was not a function of

TABLE II.9

ACCEPTABILITY OF SPEED DETECTION METHODS BY  
PERCEIVED ACCURACY, EFFECTIVENESS, AND FAIRNESS

	Speed Detection Methods			
	Radar <sup>a/</sup>	Vascar <sup>b/</sup>	Speedometer <sup>c/</sup>	ASED <sup>d/</sup>
<b>Accuracy</b>				
Very accurate	87.1 (81)	85.0 (79)	95.9 (94)	55.1 (70)
Fairly accurate	80.3 (192)	76.5 (156)	79.8 (166)	41.7 (85)
Inaccurate	14.3 (11)	6.6 (6)	17.0 (20)	9.9 (8)
<b>Effectiveness</b>				
Very effective	80.5 (144)	82.2 (88)	83.0 (127)	58.2 (85)
Fairly effective	66.3 (124)	67.3 (134)	70.5 (122)	41.8 (69)
Ineffective	48.3 (29)	36.5 (35)	31.6 (31)	10.5 (11)
<b>Fairness</b>				
				<u>Invasion of Privacy</u>
Fair	85.6 (273)	86.3 (251)	87.5 (265)	Is not 66.7 (116)
Unfair	20.6 (20)	9.2 (11)	13.1 (16)	Is 20.7 (51)

 $\frac{a}{p} < .001$  $\frac{b}{p} < .001$  $\frac{c}{p} < .001$  $\frac{d}{p} < .001$

owning more than one car: 75.9 percent of the drivers from one-car households, as compared to 83.5 percent of the drivers from households with two or more cars, felt that the car owner should not be required to pay a fine if he/she was not the driver.

Attitudes toward owner responsibility were related to the acceptability of the ASED. Although relatively few respondents supported the idea of owner responsibility, of those who did 77.3 percent also favored the ASED; of those opposed to owner responsibility, only 30.6 percent favored the ASED.

(Data on attitudes toward owner responsibility by demographic characteristics are presented in Appendix Table A.6.)

TABLE II.10

ATTITUDES TOWARD OWNER RESPONSIBILITY

Is Owner Responsible? (Q. 17b)	Nondrivers	Drivers	Percent of Drivers in Favor of the ASED
Yes	34.0	17.5	77.3 (75)
No	64.2	80.6	30.6 (346)
Undecided	1.9	1.9	p < .01
Total	100.0 (53)	100.0 (429)	

There were no variations by region, sex, education, or income in drivers' attitudes toward owner responsibility. Differences did occur by age specifically between drivers under age 44 and those 45 years and older. A higher proportion of the older age group placed responsibility with the owner. Although this accounted only for 24 percent of that group, the finding is consistent with the greater support for the ASED as a whole within this age group.

A second characteristic of the ASED is its photographic component, whereby a picture of the driver and the license plate is taken to serve as supporting evidence and to identify the driver. During the focus-group discussions, the idea of the "government" taking a picture of the driver or the driver's car evoked a variety of sentiments, ranging from amusement to analogies being drawn to totalitarianism. Two concerns in particular dominated the discussion on this topic: (1) that the picture could become a permanent record,

with the information conceivably being used for other government purposes, and (2) that, in general, the government was becoming too intrusive, and that whatever was picked up in a picture "was none of the government's business."

In light of the relatively low level of acceptability of the ASED (39.7 percent of the drivers were in favor), the fact that 60 percent of the drivers were in favor of using a photograph to identify the driver is surprising (see Table II.11). It appears that although the majority of drivers would oppose the ASED, the necessity of identifying the correct driver seemed to have a higher degree of merit than the overall ASED method. As would be expected, a positive attitude toward the photographic component was related to the acceptability of the ASED. Even more clearly, however, opposition to the photograph essentially obliterated support for the ASED.

TABLE II.11

ATTITUDES TOWARD PHOTOGRAPHING THE DRIVER AND LICENSE PLATE

Attitude about Photo (Q. 17a)	Nondrivers	Drivers	Percent of Drivers in Favor of the ASED
Favorable	73.1	60.0	61.1 (257)
Unfavorable	25.0	38.8	7.2 (166)
Undecided	1.9	1.2	
Total	100.0 (53)	100.0 (428)	p < .001

(Data on attitudes toward photographing, by demographic characteristics, are presented in Appendix Table A.7.)

The only demographic variable for which attitudes toward photographing did not vary was income. A favorable response to this particular aspect of the ASED was increasingly more likely as age increased (70 percent of drivers over age 45 favored it) and increasingly more likely as education decreased (71.2 percent of the drivers with less than a high school education favored it). These same differences by age and education also occurred with the acceptability of the ASED countermeasure. Further, women drivers tended to favor it more than male drivers. Favorable responses also occurred most often in the Northeast and the West.

4. Attitudes Toward the 55 MPH Speed Limit and Acceptability of Speed Detection Methods

A research question appropriately raised in conjunction with the acceptability of speed-detection methods is whether support of or opposition to these methods is a function of attitudes toward and adherence to the 55 mph speed limit.

Commitment to the 55 mph speed limit is measured here with three variables:

1. Drivers' opinions about what the speed limit should be
2. Opinions about the extent to which the 55 mph speed limit results in reduced accident rates
3. Typical driving speed on a highway with a 55 mph speed limit

The strong relationship between a driver's opinion about the desirable speed limit and his or her acceptability of both radar and the ASED strengthens the position that drivers who preferred a higher speed limit were less inclined to favor the more accurate speed-detection methods (see Table II.12). However, an important consideration in examining these results is the fact that 62.2 percent of the drivers concurred with the 55 mph speed limit, and only 15.3

TABLE II.12

ACCEPTABILITY OF SPEED DETECTION METHODS BY  
OPINION ABOUT WHAT SPEED LIMIT SHOULD BE

What Speed Limit Should be (Q. 1a)	Speed Detection Method			
	Radar <sup>a/</sup>	Vascar	Speedometer	ASED <sup>b/</sup>
< 55 (N=276)	74.3*	66.7	66.7	45.4
56-60 (N=88)	68.2	56.8	62.5	34.1
61 + (N=66)	53.0	54.5	66.2	24.6

<sup>a/</sup>p < .001

<sup>b/</sup>p < .01

\* This indicates that, of the 276 drivers who thought the speed limit should be 55 or less, 74.3 percent favored radar.

percent of the drivers stated that they would rather have a speed limit in excess of 60 mph. Given that the speed limit on many roads or highways prior to the nationwide reduction was 65 or 70 mph or higher, only a relatively small proportion of the drivers wanted to return to those levels.

Opinions about how effective the 55 mph speed limit is when strictly enforced were also related to the acceptability of both radar and ASED (see Table II.13). Drivers who believed that the lower speed limit was responsible for reducing the number of highway accidents were very likely (more than three to one) to favor the use of radar. In addition, almost half of the drivers who had this high level of confidence in the 55 mph speed limit also favored the ASED.

TABLE II.13

ACCEPTABILITY OF SPEED DETECTION METHODS BY  
PERCEIVED EFFECTIVENESS OF THE 55 MPH SPEED LIMIT

Reductions of Accidents from Strict Enforcement of 55 MPH Speed Limit (Q. 4)	Speed Detection Method			
	Radar <sup>a/</sup>	Vascar	Speedometer	ASED <sup>b/</sup>
A lot	78.4 (222)	65.8 (222)	67.1 (222)	48.0 (221)
A little	63.5 (167)	59.9 (167)	63.9 (166)	31.9 (166)
Not at all	52.9 (34)	58.8 (34)	67.7 (34)	26.5 (34)

<sup>a/</sup>p < .001

<sup>b/</sup>p < .01

Together with the above results on what the speed limit should be, these findings indicate that radar is a speed-enforcement mainstay and has an especially high concentration of support among drivers who also supported the 55 mph speed limit. That support for the 55 mph speed limit was related to acceptability for the ASED can at least partially be attributed to the fact that the device was similar to radar along the accuracy and effectiveness dimensions.

Whether the drivers observe, or stay close to, the speed limit, or whether they typically drive at 60 mph or more on a 55 mph road, was unrelated

TABLE II.14

## ACCEPTABILITY OF SPEED DETECTION METHODS BY TYPICAL DRIVING SPEED

Typical Driving Speed (Q. 3)	Speed Detection Method			
	Radar	Vascar	Speedometer	ASED <sup>a/</sup>
Under 60 mph	71.1 (232)	65.5 (232)	67.7 (232)	47.8 (231)
60 mph and over	68.0 (197)	59.9 (197)	63.3 (196)	32.1 (196)

<sup>a/</sup> p < .01

to whether they favored the use of the three conventional methods--radar, Vascar, or speedometer (see Table II.14). Typical driving speed, however, was related to support for the ASEd. A higher proportion of drivers who reported a normal driving speed of around 55 mph (on a road with a 55 mph speed limit) also favored the ASEd. Thus, 47.8 percent of the "slower" drivers, versus 32.1 percent of the "faster" drivers, indicated support for the ASEd. This would suggest that the lack of support for the ASEd may have been linked to the fear of detection.

##### 5. Summary

Attitudes toward speed detection were most sharply reflected in drivers' reactions to radar and the ASEd. Reactions to Vascar and the speedometer method were somewhat less enthusiastic, but closely paralleled those to radar.

Radar was a highly acceptable approach to speed detection--70 percent of the drivers favored it. In contrast, the ASEd was favored only by 39.9 percent of the drivers. Accuracy, effectiveness, and fairness were important factors in the acceptability of each of the methods. Drivers rating a method high along any one of these characteristics were significantly more likely to support the method. Comparing the four speed-detection methods along these characteristics, the proportion of drivers who found each of them accurate and effective was similar across methods. A large disparity did occur in drivers' perceptions of fairness/invasion of privacy. The majority of drivers surveyed felt that radar, Vascar, and the speedometer method were fair; a large proportion of the drivers considered ASEd to be an invasion of privacy.

In several instances, differences in acceptability and assessments of the methods varied by demographic characteristics. Although there were no

significant differences in acceptability per se by age, the degree of both accuracy and effectiveness attributed to radar was significantly higher for drivers over age 45. Radar was acceptable to a higher proportion of female than male drivers. Female drivers were also more likely than males to rate radar as very accurate and fair.

To the extent that the ASED was acceptable, the proportion of drivers with positive reactions increased with each older-age category and decreased with educational level. Similarly, younger drivers and drivers with some college education were more likely to consider the ASED to be an invasion of privacy. Further, a larger proportion of younger drivers were also opposed to owner liability.

A positive attitude toward the 55 mph speed limit (measured in terms of what respondents believed the speed limit should be and their perceptions of the effectiveness of the 55 mph speed limit) was directly related to the acceptability of both radar and the ASED. Drivers reporting compliance with the speed limit were more likely to favor the ASED.

### C. SPECIAL INTEREST STUDY

*Special-interest perspectives were included in this research in an effort to identify expert and leadership opinion about highway-safety countermeasures. The reader is cautioned, however, that respondents in this study do not constitute a statistically representative sample, and their reactions to the countermeasures should not be generalized to special-interest groups as a whole. Further, although respondents were selected because of their affiliation with certain groups and they responded from that vantagepoint in most cases, they were not acting as official spokespersons for those groups and their position should not be construed as the official position of that organization. Readers should consult Volume I (Chapter II) of this report for a detailed description of the methodology employed for the special-interest study.*

*The following reactions by special-interest groups were based on brief and very general descriptions of the countermeasures. The intent was to represent the overall concept and to allow specific issues and areas of concern to surface through informal, open-ended discussions. It is important to recognize that the reactions represent opinions and judgments and are not necessarily definitive analyses of the highway-safety issues discussed. Special-interest perceptions of these countermeasures are especially useful to highway-safety planners in formulating appropriate educational programs and implementation strategies.*

The following descriptions of the speed-detection countermeasures were used during the interviews with special-interest respondents.

#### The use of radar to detect speeding:

A police officer points a radar unit at a car suspected of speeding. Radio waves are reflected off the car, and the actual speed of the car is indicated on the radar unit.

#### The use of Vascar to detect speeding:

The police officer measures a particular section of a highway and registers the distance between those two points into a Vascar unit. When the officer sees a car suspected of speeding, he or she clicks a switch on the unit when the car is at the first point and again when the car passes the second point. The unit indicates how fast that car was going.

The use of a speedometer to detect speeding:

Police follow a car suspected of speeding, keeping a constant distance between them. Police follow the car for a specified distance, checking their own speedometer to determine how fast that car is actually going.

The use of an automated speed enforcement device--for example, Multi-nova or Traffipax:

The speed of cars on highways would be measured by electronic means and recorded on a meter. A camera is set to go off if the car is exceeding the speed limit. If a car is speeding, the camera would photograph the car and the meter readings (date, time of day, speed). A ticket or warning notice would be sent to the car's owner.

## 1. Radar

### a. A Preferred Speed Detection Method

Radar was widely supported by respondents from each of the special-interest groups. Although adequate training for officers and maintenance of equipment were sometimes mentioned as conditions for acceptance, radar was considered to be a highly successful approach overall for detecting speeding, and the mainstay of an effective enforcement program. Radar elicited the following reactions: "It's the best way to detect speeding" (police chief respondent); "the most effective" (state police respondent); "top-notch" (highway-safety department respondent); "very valuable" (AAA); "We give it great support" (trucking association respondent). An important factor in understanding the positive reactions to radar is that respondents were inclined to compare it to Vascar and the speedometer method. (Automated speed enforcement tended to be discussed as a separate entity.) While none of the speed-detection methods was considered foolproof or ideal, most respondents did feel that radar was more effective relative to Vascar and the speedometer method.

The effectiveness attributed to radar and the widespread preference for this method appear to be a function of three factors: (1) acceptance by the public, (2) credibility in court, and (3) practical advantages in using the device.

Public Acceptance. It is noteworthy that public acceptance of the legitimacy and effectiveness of radar plays a major role in determining special-interest-group support for this countermeasure. In a number of instances, the effectiveness of radar was explained in terms of public attitudes toward it. Common reactions were: "It's effective; people accept it." "[The

public accepts it, [and] thinks it's accurate." More specifically, public acceptance is important because tickets received as a result of radar detection are not likely to be challenged, thereby simplifying and reinforcing the speed-enforcement process. A state highway-safety respondent indicated that "people don't fight tickets if radar is used"; a chief of police noted that "there are few challenges"; and a bar-association director noted that "people don't fight it in court too much." In addition, public acceptance of the accuracy of radar has made it an effective deterrent: "Speeding people do slow down if they know it's around" (insurance industry respondent). "Radar is most feared by the public" (highway-safety department respondent). "People are afraid of it; unless you have a 'fuzz-buster,' they will get you" (auto dealer association respondent).

Legal Acceptance. The credibility of radar data in court when speeding tickets are challenged was considered to be another advantage in using this device. That radar represents difficult-to-refute evidence influenced its acceptance primarily within groups that have ongoing dealings in this area: highway-safety departments, the state police, and chiefs of police. As noted by a few respondents, the facts that "courts tend to back it," that there is "little problem with the courts," and that it "is good evidence" greatly facilitate the speed-enforcement job. From the vantagepoint of respondents directly involved in speed enforcement, legal defensibility is a key factor in how effective a countermeasure can be, in that legal acceptance of a device reduces the likelihood that speeders will challenge its evidence, and also increases public sensitivity and adherence to speed limits. And their experience has been that "the courts have finally accepted radar, and are likely to stand by radar readings."

Practical Advantages. Greater ease and efficiency were also factors mentioned by respondents affiliated with highway-safety departments, the state police, or chief-of-police associations. One advantage radar has over other speed-detection devices is that it "offers more technological flexibility to the officer." Compared to Vascar, it is easier to transfer from car to car, and easier to learn and use. Compared to the speedometer method, radar is more efficient, since the amount of time it takes an officer to determine whether a driver is speeding is far less. It was pointed out that radar also saves wear and tear on the police car and saves on the fuel that is consumed during a chase. In one state, a police chief noted that the increased efficiency resulting from radar use has freed police manpower for other law-enforcement

tasks. In another state, the state police pointed out that the ability to stop a greater number of speeders has directly aided other law enforcement: "We are very supportive of radar for all enforcement. . . . [We] like to catch speeders because you can check to see if they are drinking, licensed, wearing glasses, etc. . . . Radar is not just a speed-enforcement device."

b. Conditions for Use

A number of issues associated with the use of radar were raised by respondents. The most widely discussed concern was the adequacy of officers' skills and the timely maintenance of the equipment.

Training and Equipment. Despite its assets, the fact that radar is not a foolproof device nor infallible was a distinct theme throughout the interviews. From the perspective of highway-safety-affiliated respondents (highway-safety departments, chiefs of police, and the state police), the potential for misuse clearly exists and should be acknowledged and better controlled. A police chief made the point that "there is no problem with radar in principle--it's the use of the equipment." One respondent believed that the angle of the device when the officer is moving may cause inaccurate readings, and on a busy multi-lane highway there are problems in detecting the wrong car when the device is stationary. The need to re-establish public confidence in how radar is used, especially in the wake of the Dade County controversy, has focused attention on officer training. In one state, the legislature is considering a law that would require 20 hours of in-house training and 20 hours of experience prior to having officers operate the radar unit. The respondent (highway-safety department) indicated that he felt that 5 hours of in-house training was sufficient, but that "the public is questioning radar now, and we're going to have to undo Florida. . . . This bill should help."

In contrast to the solution-oriented stance taken by highway-safety-affiliated groups, respondents from the other special-interest groups tended to be skeptical about existing training and equipment-maintenance practices. Comments from bar associations include: "Lawyers don't trust [radar] because they have seen [both] it and officers be wrong." "I'm not convinced that officers are properly trained and that the equipment has been checked." "[State] lawyers have little faith in radar and could prove it was inaccurate if they had the time and money to do so." From the vantagepoint of an ACLU respondent, the problem is that current police standards are inadequate and that the caliber of the police officer needs to be upgraded: "The problem with radar is who is using it. . . . You must have a professional with better training and

higher salary. . . . Cops are too unprofessional to trust." A similar point made by another ACLU respondent was that radar does not preclude selective speed enforcement, and that poor training and low professionalism have caused radar to be used in a prejudiced and discriminatory manner. An insurance-company respondent also doubted whether accurate and reliable use could be achieved: "The equipment is useful in the hands of a well-trained officer if properly maintained and manufactured. . . . [I] don't think the average officer has the skills and maintenance services available to generate accurate readings." In the opinion of a trucking-association respondent, publicity from the Dade County case has made truckers "leery of poorly trained users" of radar equipment.

An issue related to proper use and training is whether radar use should be limited to the state police or should also be used at the local level. In one instance, a highway-safety respondent had less confidence in the ability of local police forces both to provide adequate training to their officers who use radar and to maintain the equipment as necessary. Similarly, a bar-association respondent felt that the dangers of selective use were more acute at the local level: "Sophisticated equipment is being given to small-time operators, and it can be used to harass people." Conversely, the need to expand radar use to the local levels was stressed, and opposition to this was described as a political struggle, not a matter of competence. (A highly charged political issue in one state is that the legislature will not fund the purchase of radar units even for the state police.)

Enforcement Versus Deterrence. A concern expressed in relation to radar was that no matter how effective speed enforcement is, it does not have a sufficient impact on reducing the prevalence of speeding, and that the assessment of devices per se tends to measure their value for detection and ticketing, rather than for the purpose of deterrence. Since "speed enforcers don't decrease speed [and] don't deter, [but] only accomplish a quota of tickets" (bar-association respondent), there was an interest in shifting attention away from "catching speeders" toward programs that would make it less likely that people would speed. The use of radar in a preventive way (having it "attached to a police car and [made] visible to the driver") was seen as more appropriate and very effective.

The following statement by an AAA respondent summarizes the position:

"[We] would strongly prefer visible enforcement to deter speeding rather than hidden enforcement to entrap drivers. . . . [We] prefer marked patrol cars spaced along the highway. . . . Radar is too much of an entrapment device; radar does not educate. There is a need to get voluntary compliance. Speeding is natural, so if police cars were spaced out along the road it would get people to continually slow down instead of entrapping them."

In the interest of maintaining the enforcement effectiveness of radar, state-police respondents strongly objected to legalization of the "fuzz-buster." Drivers' use of the fuzz-buster has shifted state-police interest back to both Vascar ("I like it because [there is] no fuzz-buster problem.") and to the speedometer method ("[It is] not as efficient as radar. . . . You can't beat it with a fuzz-buster, though."). Recognizing that there is public pressure on local legislators to oppose banning fuzz-busters, some respondents felt that federal action was a more viable alternative: "The 'feds' ought to do something about fuzz-busters--make [them] illegal. It is easier to do at the federal level. It takes local legislators off the hook."

## 2. Vascar

Vascar is a little-known approach to speed enforcement and is rarely or never used in the case-study states. In fact, in one state it was declared a speed trap and was made illegal. There was a distinct lack of both interest and experience with Vascar among special-interest respondents. As a collective viewpoint, respondents felt that the device was outrated by radar along most dimensions, it never had the widespread use and popularity of the speedometer method, and it offered few, if any, unique advantages. It was depicted as an outmoded, "Mickey Mouse" device that had been "phased out about 10 years ago."

Inconvenience and expense were common objections to Vascar. Both state police and police chiefs noted that it had to be specially mounted in cars, that it could not easily be transferred from one car to another, and that it was difficult to set up (a specific distance must be measured off on the highway). According to a police chief, it is "too complicated for the officer, and the public does not understand it, either." Vascar was also considered to be expensive, especially in comparison to radar. To the extent that they had an opinion on Vascar, state police in particular tended to find it a "cost-prohibitive" device.

Another criticism directed at Vascar was its potential for human error. The chances of bias resulting from differential reaction times between officers was mentioned by police-chief, trucking-association, and ACLU respondents as a

major liability of this method. The human factor makes it highly susceptible to public and legal criticism. As described by an ACLU respondent, Vascar provides "heresay evidence. . . . It takes human beings to do the work, and they have different reaction times. . . . It's too variable. You could prove imperfection pretty quickly in court."

Finally, respondents had divergent opinions about whether there was more or less police visibility with Vascar. A state-police respondent saw some merit in the officer being able to stay off the roadway with Vascar and not easily be seen. On the other hand, bar-association and automobile-dealer respondents felt the while it may have a deterrent effect, it has limited value as a detection device: "People know where the road is marked off," and it is "too easy to slow down and avoid being ticketed, because you can see the patrol car."

### 3. Speedometer

There was little consensus among special-interest respondents about whether the speedometer method is effective for speed enforcement. Along several basic criteria (effectiveness, accuracy, and public acceptance), special-interest assessments of the speedometer method fell on both positive and negative sides of the scale. The following comments illustrate the differences of opinion:

#### POSITIVE:

"Very accurate and the most acceptable in court." (Police chief respondent)

"It's tough to beat an officer's word in court. It's easier to doubt a machine." (Bar association respondent)

"It is effective and draws great public acceptance." (State police respondent)

"[It is] the only one accepted by the public." (AAA respondent)

"It's more accurate than radar or Vascar because of police-speedometer calibrations." (Auto dealers association respondent)

"[It] could be very accurate if calibrated periodically." (Highway-safety department respondent)

NEGATIVE:

"There is always a question about the reliability of the calibration of the speedometer." (Bar association respondent)

"It's not generally accepted in courts, [and] seldom used." (Bar association respondent)

"[It is] less effective than radar." (Auto dealers association respondent)

"[It is] not as effective as radar." (State police respondent)

"[It is] known to be inaccurate." (AAA respondent)

"[It is the] least effective [and] least accurate." (Insurance industry respondent)

The divergent opinions about the speedometer method centered around four issues: credibility in court, accuracy of implementation, efficiency for speed enforcement, and public attitudes toward it.

a. Status in Court

An advantage in using the speedometer method is that the officer must be present as a witness in the event of a court contention. Respondents who noted this requirement believed it held primarily for the speedometer method. Although this places a burden on police manpower, the position taken by some highway-safety respondents was that an officer's corroboration that the driver was speeding carries significant and frequently incontrovertible weight in court. Other highway-safety respondents, however, felt that there were "so many legal questions raised in court that most end up as reckless-driving charges." The large amount of time it takes in court to convict the speeder with this method (as opposed to a convenient radar printout) diverts officers from "their real function of law enforcement." Similarly, a police chief indicated that this method was "too much trouble in court because of the lack of written evidence and the difficulty of being specific about the speed of the offender."

b. Accuracy

Proper use of the speedometer method requires having a precisely calibrated speedometer, following the speeding car for a certain distance, and maintaining a constant distance from the speeding car. Meeting these requirements was cited by respondents as conditions for adequate effectiveness.

and acceptability. That is, given that the method is correctly implemented, the method is considered to be accurate and reliable and, for some respondents, provides a better measure of speed than the other methods. Thus, according to an AAA respondent, who perceived radar to take only a single measure, the speedometer method "is more effective than radar because radar takes a quick reading, not an average. The speedometer is a fairer judge of speed."

From another standpoint, however, respondents questioned the feasibility of correct implementation. Calibration is apparently subject to error, and recalibration is needed on a regular basis and whenever there are tire changes. In addition, pursuing a speeding car at a constant distance was thought to be a special skill which officers did not necessarily have. An insurance respondent who found this method to be highly inaccurate felt that it was "damn difficult to maintain an exact distance between a police car and an offending car."

c. Efficiency

Regardless of its effectiveness in principle, the speedometer method was considered inefficient: "You cannot chase every speeding car, and, unlike radar, it is only good in one direction" (police chief respondent). "You can't catch many people with a cop on their tail" (trucking association respondent). A related concern was that speeders are aware of being followed and can easily avoid being stopped by slowing down: "If you don't see the car behind you, you are a dumbo" (AAA respondent). Fuel-consciousness also limits the utility of the speedometer method. Car chases consume a great deal of gasoline, which is considered wasteful. Car chases also cause wear and tear on patrol cars, and therefore additional and needless expense. Finally, some respondents felt that speeding patrol cars themselves create dangerous, accident-causing situations on the highway.

d. Public Acceptance

As pointed out by a bar-association respondent, the idea of a driver's speed being measured by an officer from a concealed position raises public concern about equity and "fair and square" speed enforcement. In contrast to radar and Vascar, the "openness" of the speedometer method appeals to the public's sense of fair play. A different interpretation of public attitudes, however, was posed by another bar-association respondent: "People fundamentally don't trust police. . . . People are suspicious of the speedometer [method]. . . . They wonder, 'Does the cop have a quota to fill?'"

#### 4. Automated Speed Enforcement

The effectiveness of an automated approach to speed enforcement (ASE) was a secondary criterion in evaluating this countermeasure. The primary concern was the reception ASE would receive from the driving public and in the legal arena. Legal and social constraints on law-enforcement policies were especially acute issues for the highway-safety, state-police, and police-chief respondents. The perpetually defensive action that they felt an automated approach could require in the face of hostile public reaction, as well as the dim prospects for legislative support, made the advantages of ASE less appealing. Given that ASE may necessitate new legislation, given that legal precedent is against policies that may infringe on citizens' rights, and given that other reasonably effective speed-enforcement devices are available, launching an ASE campaign was seen by some as a futile and pointless effort. The following comments are indicative of this general position:

"There is not a reasonable possibility of getting automated speed enforcement used here." (Highway-safety department respondent)

"[State] considered using it but decided not to, thinking a law would come out prohibiting it in a year." (Highway-safety department respondent)

"Problems on top of problems. . . . Too many problems." (State police respondent)

"We'd put our efforts elsewhere." (State police respondent)

"It couldn't be effective because you'd never get it passed." (Police chief respondent)

"You would have to convince the courts first. The courts are trying to kick out all police devices. The courts would have to uphold it." (Police chief respondent)

"In Texas they settled on the warning notice because they couldn't make the ticket stick legally. But how effective is a warning? Warnings usually have very little influence on driving habits, so, again, automated speed enforcement is really ineffective." (Highway-safety department respondent)

"From a strictly insurance standpoint, this is highly desirable. From a political standpoint, it's not practical. If legislators protected the use of fuzz-busters on personal-liberty grounds, how would they approve automated devices?" (Insurance industry respondent)

Attitudes toward ASE do break down by type of special-interest group. Favorable reactions tended to be voiced by auto-dealer, trucking-association, and insurance-industry respondents. For these groups, support for strict speed-enforcement methods was a matter of interest, social obligation, and good business; any other position would be "like being against motherhood." A negative stance toward ASE tended to be taken by bar-association and AAA respondents, for whom invasion of privacy and government surveillance were highly objectionable. Although bar-association respondents were more likely to emphasize the violation of constitutional rights, some respondents from both groups felt that ASE was basically inconsistent with the American social and political system. ACLU respondents were of a divided opinion, with positive attitudes toward the nonselective, nondiscriminatory nature of the ASE process, but having reservations nonetheless about the use of a camera device. Although generally doubtful about its feasibility as a speed-enforcement program, highway-safety representatives, state-police representatives, and chiefs of police also had mixed reactions about the merits of the device itself. The potential for efficient speed enforcement was weighed against some practical problems in implementation.

Reactions to ASE can be organized according to three topics: (1) assessment of this method as a speed-enforcement device, (2) legal barriers to implementation, and (3) other implementation issues.

a. ASE as a Speed Enforcement Device

An advantage of ASE is that it frees manpower for other police functions. Not only would ASE allow the number of speed patrols to be reduced, but the evidence provided by the photograph would reduce, or even preclude, the need for court appearances by police in corroborating speeding violations. That ASE could alleviate staff shortages was an especially important selling point for police-chief respondents:

"It would save manpower, and police chiefs would support it on that ground."

"We would actively support it because it would give photographic evidence. We always have a manpower shortage, and this would ease that problem."

"Automatically getting a picture mailed with the ticket would be great. It speaks to the manpower issue."

Along these same lines, an insurance respondent offered support for ASE because:

"An automatic device would be good to save police manpower. The insurance industry is interested in freeing police to write accurate crash reports and to pursue nontraffic crimes, so we are supportive of efforts to free police from writing tickets all the time."

ASE was also evaluated as a speeding deterrent. A frequent comment made by respondents from various groups was that the "everpresent" nature of the device would be very effective in keeping drivers within the speed limit. An enthusiastic police chief indicated that "it would be great as a deterrent; we could also set up dummies to deter speeders." Similarly, a bar-association respondent noted that "the photograph is solid evidence and, since people are very leery of evidence, this may result in lower speeds." A countervailing concern about ASE was that it may not in fact be effective as a deterrent because of the time lag between the speeding incident and receiving the ticket. Immediate feedback on a speeding violation was thought to be an important "instructive" experience. Therefore, although it may be effective in the systematic detection of speeders, there were some reservations about its being so punitively, as opposed to constructively, oriented.

Benefits notwithstanding, a number of respondents expressed an ideological resistance to ASE because of the social-control implications of an automatic photographing device. A highway-safety respondent made the point that "it would be very effective and would be a neat idea to save manpower, but it is contrary to American habits and customs." This point illustrates the dissonance between a rational-objective assessment and very strong social-ethical qualms about undue government intrusion. The following analogy between ASE and authoritarian policies was made by a police chief: "It's like monitoring people, and people don't like the idea of being watched all the time. . . . It may be used elsewhere, but in the U.S. no one would go along with something like this." A similar point was made by a bar-association respondent: "This is totally unacceptable in this country. It has a sneaky-cop tone, like having your house bugged. It's another way of gathering data to be used against someone."

Negative attitudes toward ASE also stemmed from reactions against an overly mechanized society. In the context of concern and frustration about dehumanized communications with a growing number of institutions (such as banks

and large bureaucracies), ASE represents the rampant spread of automation. A trucking-association respondent stated: "I am totally against this. Society is too device-oriented now. This is Orwellian . . . 'Big Brother.' You should just have stricter enforcement of the speed law." An AAA respondent also vetoed this approach on grounds of excessive technology: "Electronic devices without the use of manpower is too much."

Legal Barriers. Legal issues associated with ASE centered around the photographic element of the countermeasure. The nature of the evidence available with the ASE process (a photograph, with no police or other witnesses) was thought to be inconsistent with the provisions of existing speed-enforcement statutes. Replacing in-person police testimony with a photograph was considered unacceptable because "positive identification" of the driver was required, with an officer "witnessing" the violation. Further, because "the officer has to give the driver a ticket personally, [ASE] would be opposed on statutory grounds." By precluding the presence of a "witness," one's legal right "to confront [one's] accuser" was denied.

The most widely mentioned legal issue, however, was invasion of privacy. For a number of respondents an immediate reaction to ASE was, "This is an invasion of privacy." For several bar-association and ACLU respondents, however, the legal question here was whether people presumed that they had the right to privacy in their car. The key question would be, "Is there an expectation of privacy in the situation whereby people would be entitled to know that a picture is being taken" (ACLU respondent). However, another ACLU respondent was quite adamant that the photographing was acceptable: "It is legitimate to take a photograph if one is violating the law. There need be no sympathy for people who are doing something illegal or illicit and speed at the same time. When people are doing something they should not be doing, they take chances." This very point--the potential for using this evidence to identify other criminal behavior--was a particularly objectionable aspect of ASE for yet another ACLU respondent: "It could be used to incriminate people for other crimes being committed when the picture was being taken: smoking . . . even the use of alcohol could be discovered. It opens the door for abuse."

Possible misuse of the system by a government agency (that is, use beyond protection purposes) was also a concern of the ACLU. The use of cameras by police, especially their use in public places, has been opposed by the ACLU because the method could be used for a variety of purposes, and the data could be made part of a general data bank. Two criteria that would have to be applied

to ASE are (1) is there a legitimate law-enforcement interest being served that could best be served with this device, and (2) what controls would be used to ensure that the camera would go off only if the person is speeding?

Implementation Issues. Among some highway-safety, state-police, and police-chief respondents, the cost of buying and maintaining ASE equipment was prohibitive within existing budget constraints. There was a general assumption that the departments would be responsible for purchasing the devices and that they would be costly. The expense associated with an ASE program and apprehension about underwriting such a program overshadowed consideration of benefits and advantages. One respondent labeled it "utopian because of cost." Others indicated that cost was the primary barrier to acceptance: "I would support it, except for cost." "It would be fine if it were affordable." "Financially, it's not worth it; it's too expensive." In contrast to the position that cost precludes consideration of ASE, one highway-safety respondent who was especially enthusiastic about its use indicated that his agency "would show support for the use of [ASE] by providing funds to localities so that they could purchase the devices." The question of who (the federal, state, or local government) was responsible for covering the costs of a speed-enforcement program was also raised. According to a state-police chief, responsibility on interstates would rest squarely with the federal government:

"[We] would love to see an automated device. Federal government should play a great role here. This is federal responsibility. [State] needs an automated device; if the state police are responsible for law enforcement on federal roads, we need to establish federal funding or establish federal police to do it or give more funds to state police. We need automated devices to comply with federal directions on federal roads."

Several other difficulties with implementing ASE were identified. In each case the problem was a practical-implementation issue that, were it adequately solved, could make the method feasible.

Mechanical devices are always subject to breakdown and, in the case of unattended devices, can also be stolen or damaged. Thus, this would entail repair as well as police-manpower expenses. The device would be "vulnerable to vandalism. . . . Police would have to babysit for it."

Accurate identification of the driver could also be a problem because drivers may try to disguise themselves and "people would start wearing glasses so they couldn't be identified." Similarly, license plates themselves could be

altered: a "U could be made to look like an O." Tinted windshields with sunscreens may also interfere with the clarity and usability of the picture. Rented cars and other commercial vehicles posed another problem. The time and effort in tracking down drivers in either company-owned cars or rented cars was thought to be a "waste of manpower." In considering ASE, one would "have to look at the amount of money you would have to spend. . . . You would have to look all over the place to track down a rented-car driver."

For some respondents, ASE was acceptable only if used as a "warning program"; it was not acceptable if tickets were issued as a result. An automobile-dealer respondent dismissed the possibility: "You can't give people tickets that way--maybe warning notices." To an AAA respondent, warning notices were also more appealing: "It's better to provide a warning notice to let the driver know he is being caught. The warning device on I-95 shows drivers if they are speeding. This is a positive approach, not a negative punishment." A state-police chief suggested that because the program will be so novel to the public, the use of warning tickets might ease the initial adjustment period. He felt that the use of ASE for ticketing would be more acceptable after the public had grown accustomed to the system. Similarly, an automobile-dealer-association respondent attached the proviso that the automated system be set so as to detect only "extreme speeding." This would give the driver the "benefit of the doubt" if he/she were speeding only temporarily to pass another car or to avoid an accident.

Finally, a few highway-safety and state-police respondents were interested in possible research applications of a highway photo-video system. Thus, ASE "should be used for evaluation and information purposes," and it "might be good in getting data on who's speeding and where."

## 5. Summary

Radar was widely supported by respondents from each of the special-interest groups. Preference for this method was frequently expressed in terms of its being "better" than Vascar or the speedometer method; specifically, the preference stemmed from (1) the perception that the method is generally accepted by the public, (2) the perception that radar evidence tends to hold up in court, and (3) the perception that radar is more efficient and convenient for the officer to use. Despite widespread support, respondents did emphasize that two conditions had to be met for radar to be acceptable: (1) the officers using the equipment had to be adequately trained, and (2) the equipment had to be regularly maintained.

Respondents tended to be unfamiliar with Vascar, and generally showed little interest in this countermeasure. The dominant viewpoint was that Vascar was outrated by radar along most dimensions and offered few, if any, unique advantages.

The speedometer method elicited strong arguments from both proponents and opponents. On the one hand, the officer's word in court was a strong advantage, the continuous-type measure was more accurate, it was a flexible method from an officer's standpoint, and it was considered a "fair" method by drivers. On the other hand, court appearances are very time-consuming, speedometers are often not properly calibrated (and hence are inaccurate), and the method is frequently challenged by drivers receiving tickets.

Legal barriers and objections by the driving public were the primary reasons identified by special-interest respondents for considering ASE to be untenable. Negative responses were especially likely from bar-association and AAA respondents on the grounds that this countermeasure was an invasion of privacy. Because strict speed enforcement was of special interest to them, auto-dealer, trucking-association, and insurance-industry respondents tended to favor ASE, although even these respondents were sometimes skeptical about its acceptability by the general public.

### III. DANGEROUS AND NEGLIGENT DRIVING DETERRENCE

Three countermeasures in the study are designed to promote safe and careful driving by making the public aware that dangerous and negligent driving could (1) cause accidents or (2) result in detection and possibly a penalty. The first countermeasure is the Citizen's Band (CB) radio, whereby drivers would be warned that special police patrols would be in effect in certain areas; the CB would also be used by police to intercept messages about unpatrolled areas, which they would then patrol. The second countermeasure is special Newspaper Reporting of accidents, which would provide drivers with detailed information about how and why specific accidents occurred. With the third countermeasure, a Traffic Observer program, specially trained persons would be stationed in high-accident areas to report unsafe driving actions; warning notices would then be sent to the car owner. One basic premise of these countermeasures is that drivers will exercise greater caution if the chances of detection are greater, or if the connection between unsafe driving and accidents is made explicit. Given the general objective of deterring dangerous driving, the three countermeasures differ in the type of information disseminated, the medium of communication, and the type of enforcement procedures employed.

Citizen's band (CB) radio is designed to deter drivers from speeding or other illegal driving behavior while they are on the highway, by giving them information about the presence of police patrols; in addition, the exchange of information over CBs about "patrol free" areas would be less attractive if highway police were to intercept their messages and specifically patrol such areas. Newspaper reporting is intended to be educational, in that it provides all drivers with detailed information about the circumstances surrounding selected accidents, so that drivers who read the reports would have an adequate understanding of the nature and consequence of the accident. In contrast, a citizen-observer program is directed specifically at drivers who have been caught driving negligently; notifying these drivers of their negligence would act as a deterrent in the future.

#### A. FOCUS GROUP DISCUSSIONS

The following descriptions were presented to focus-group discussants:

Citizen's Band (CB) radio would be actively used by police to deter speeding. It could be used in two ways:

1. Announcements would be made that for the next few hours, special police patrols would be in effect on certain streets and highways.
2. The exchange of information among drivers as to whether a particular stretch of highway is patrolled, or not, would be intercepted by police; police would then patrol the area considered safe.

Using a Newspaper Reporting approach, newspapers would periodically report a specific highway crash. The report would describe how the accident happened and would suggest how it could have been avoided.

With Citizen Reporting, observers, trained by the government, would be sent out to various places to look for unsafe driving actions. When unsafe driving actions occurred, they would record the license number of the car involved. This record would be used by the police to issue a warning notice to the car owner

These countermeasures were considered in six discussion groups--two with participants under age 30, two with participants age 30 or older, and two with representatives of special-interest groups. The discussants in all of the groups expressed similar concerns about the three countermeasures, which centered predominantly on issues of morality, privacy, and effectiveness.

#### 1. Citizen's Band Radio

In discussing the use of CB as a deterrent, participants in the general-public group focused on the issue of police interfering with and sending false transmissions that an area is not being patrolled. Reactions to this were uniformly negative. CB radios were regarded as a special purchase made for personal use, with police use for deterrence an unwarranted intrusion. The issues of invasion of privacy and the unbridled use of police power aroused strong emotions:

"It would be like talking on the telephone and have the police come on and say you should be doing this, you should be doing that."

"If I'm talking to someone I don't want to be interfered with."

"It's called citizen's band, not police band."

Explicit in these comments was a distrust of the police themselves, as well as how fairly they would use CB.

A secondary criticism in the general-public discussions was the appropriateness and effectiveness of the proposed use of CB to deter unsafe driving. One Atlanta discussant commented, "More people listen to the radio than to CB. Few people have CBs." A variant of this criticism was, "Why are they picking on CB? They should use AM and FM." The criticisms appeared to have been based on the desire to protect CB from an unwanted use, and not necessarily on the desire to find a more effective way to use new communications technology to deter unsafe driving.

Discussants in the special-interest groups anticipated a strong negative public reaction to the use of CB, again focusing on the issue of transmitting misleading information. A Cincinnati discussant observed, "Having police confuse people--we would have a public outcry. This would become a sham." The effect that transmitting misleading information would have the value of CB as a communications medium was also of concern: "This would totally discredit CB as a correct source of information." A number of law-enforcement representatives noted that some authorities are currently monitoring CB and using it to communicate with drivers. In their judgment, this use has had limited effect. One Seattle discussant reported, "CB has been most effective for identifying problem areas, although occasionally we have false alarms." Another observation was that people are "playing a game of identification. They see Smokey and they know Smokey can bite, and they slow down. It's a game people play . . . moderately effective." In this context, it is pertinent to note that the general-public discussants did not criticize the use of police monitoring to locate areas in which speeders could be found because they were reported to be free of police patrols.

The lack of criticism from the general-public discussants of police monitoring suggests that it would be wrong to generalize the negative reactions to police use of CB. These criticisms were directed at what were perceived to be abuses of police power, and not at its legitimate exercise. Therefore, it is noteworthy that there was interest expressed in the potential of CB for communicating directly to drivers on the road. Thus, one Cincinnati specialist suggested, "Stop truck drivers and ask them to get on CB to tell traffic to slow down." While rejecting uses that they fear would generalize public resistance, such discussants felt that CB could be used effectively to provide deterrent information to drivers.

## 2. Newspaper Reporting

Reactions to systematic, detailed reporting were influenced largely by prior exposure to usual news coverage of accidents in which the cause or reason is given secondary emphasis. Thus, much of the discussion of newspaper reporting focused on the consequences of accidents--death, injury, or physical damage--rather than on the circumstances under which they occurred. The specific goal of using news reports as an educational tool was given limited attention, which illustrates the normal propensity to interpret new concepts in terms of existing knowledge and beliefs. Current reporting of accidents was viewed as something that is already in existence, constituting "the bulk of TV coverage." However, to the extent that the educational goal was recognized, it tended to be endorsed: "You could learn something from that." "Money spent on education is well spent." These endorsements, however, are indicative of the fact that education per se was highly valued, and not necessarily indicative of a specific favorable assessment of newspaper reporting as a countermeasure.

Some discussants, especially law-enforcement representatives in the special-interest groups, felt that their experience with news reports indicated that they do not act as a deterrent:

"It doesn't affect people a whole lot unless it's a friend or relative."

"People never think that those problems could happen to them."

Further, one discussant felt the public had become inured to violence: "After the bloody pictures from Vietnam, people are pretty used to seeing all that." Other criticisms of the current use of news reports were that "pictures have been controversial" and "it seems cumbersome."

Interest was expressed in both special-interest groups about the use of the news media as an adjunct to conventional law-enforcement efforts. For example, despite their skepticism about the value of publicizing the physical injury and damage from accidents, some law-enforcement officers felt that publicizing punishments for traffic violations would have a deterrent effect: "The news media is very effective by publicizing DWI arrests." "Punishment to drivers should be published to promote fear."

A different view was expressed by a Seattle representative:

"[News reporting] doesn't do much to reduce accidents. It does help get public acceptance for law enforcement. For example, if there is a concentration of accidents in an area, and this is reported, people will accept a radar program set up because they know it's not just a revenue-producing junket."

Some of the Cincinnati representatives also mentioned methods whereby news reporting would help create a favorable climate of opinion toward law enforcement:

"We need to create a stigma associated with driving after having a drink or two."

"If there was a massive media campaign about not letting someone drive if they suspect he's been drinking . . . on TV primarily."

It is important to note that all these comments completely ignored the issue about whether news reporting can play a role in educating drivers about negligent and hazardous driving situations, and, indeed, whether such an educational effort would be effective. Existing patterns of thought about the role of the news media may constitute a serious barrier to using newspaper reporting as an educational tool.

Serious doubts were expressed in both special-interest groups about the legal issues surrounding detailed newspaper reporting. One Cincinnati specialist asserted, "The news media would not touch this." The specific concern was that detailed reporting "could lead to a lot of lawsuits," especially if the issue of how an accident might have been averted is addressed in a news report. A similar criticism was made by a Seattle specialist: "On one hand, public embarrassment; on the other, libel." While legal issues as such are beyond the scope of this study, it is pertinent to note that some specialists in this area questioned the legal practicality of newspaper reporting. Such doubts would have to be allayed before their support could be obtained.

### 3. Citizen Reporting

Discussion about citizen reporting was restricted almost exclusively to its acceptability in principle, with virtually no discussion about the logistics of implementation. There was some support for the idea of encouraging individual citizens to report negligent drivers. Thus, one Atlanta discussant commented, "It would be good if you could report drivers that are unsafe. It's

just being a good citizen." In addition, some discussants felt that warning notices could be effective deterrents: "To get a notice . . . people would stop and think real hard about that."

In contrast to these positive reactions were doubts about the qualifications of civilian observers. Thus, one Atlanta discussant asked, "What kind of training?" A special-interest group representative noted that, in insurance cases, "citizen reporting is totally unreliable." A Seattle law-enforcement official claimed, "Unless you are a trained officer, you may create more problems." Another Seattle discussant concurred: "If there is money involved, that would be better spent to give it to counties and states to hire more policemen." A different criticism questioned the necessity of training a corps of citizen observers: "Police get plenty of reports now. . . . People like to talk if they see something. They will tell you about it. They don't have to be trained."

Still another criticism focused on the effectiveness of citizen observers in deterring dangerous and negligent driving. Thus, one Cincinnati specialist noted that "they can't make arrests," while another asked, "How can you issue a warning notice if you don't know who is driving?" Further, according to one discussant, citizen observers would be ineffective because "most of the accidents are with trucks and with highways." Thus, for a variety of reasons, some of them contradictory, numerous discussants doubted whether a citizen-observer program could work.

In all four groups, there were intense negative reactions to the principle of instituting programs of specially trained citizen observers. The terms used in criticizing this idea--"vigilantism," "Big Brother," "communism"--reflect the intensity of feeling that characterized this part of the discussion. An Atlanta discussant stated, "You would have people pretending to be highway troopers, just like you have security guards who think they're police." One discussant concurred: "People dislike being spied on." A similar view was offered by a Denver discussant: "Vigilantes. . . . Also, spying and Big Brother again." Equally intense reactions were voiced in the special-interest groups. A Seattle discussant commented, "This is in the same category as ORBIS. You are going to have cameras watching you . . . a little old lady watching you, and someone spying on you all the time. This is a moral issue." A Cincinnati discussant was just as vehement: "This is almost bringing in what happened in Germany. This is when we had the kids squealing on their parents. . . . When you start having ordinary citizens involved in this sort of thing, and even

if there is success, one thing is going to lead to another." While some felt that the program might be "Okay if they are DOT people," the more typical response was that it could be "very dangerous." Thus, apart from the technical reservations voiced about citizen reporting, it was rejected by both groups of discussants on emotionally charged moral grounds.

## B. GENERAL PUBLIC SURVEY

### 1. Citizen's Band Radio

Two ways in which CBs could be used as highway-safety countermeasures were described to survey respondents as follows:

A method being considered to encourage drivers to stay within the speed limit would use the Citizen's Band, or CB, equipment that many cars have and that drivers use to listen or talk to each other. One way to use CB is for police to make announcements on it that, for the next few hours, there would be special police patrols on certain streets and highways.

Another way in which police can use CB is to listen in when drivers pass on information about avoiding police patrols. Police could then patrol those areas where drivers say there aren't any police patrols.

During the focus-group discussions, objections to CB countermeasures centered on issues of propriety. CB radios were considered to be private domain, and their use by police for enforcement purposes was construed as an exploitation of a personal communications system. Further, some discussants felt that CB communications were analogous to telephone conversations, and that these CB countermeasures were an abuse of police prerogatives. Concerns about invasion of privacy and excessive government intrusion were sometimes reactions merely to possible misuses of CBs--for example, they could be used to communicate false information (e.g., announcing nonexistent patrols, or announcing no patrols in areas that are being patrolled) or to give drivers a variety of directives that may not be relevant to highway safety.

Public reaction to the CB countermeasures is measured along two dimensions: (1) expected impact on speeding or speed detection, and (2) propriety in using CBs. Drivers' reactions along these dimensions will be examined in relation to demographic characteristics, CB ownership, typical driving speed, and the acceptance of the 55 mph speed limit. Of particular interest is whether drivers who are directly affected by these countermeasures (owners of CB equipment or drivers who typically exceed the speed limit) had higher or lower expectations about effectiveness, or whether they were more inclined to find these uses of CB improper. The first section below presents the survey results on the perceived effectiveness of the two CB methods. The second section addresses public opinion about the propriety of each method.

a. Perceived Effectiveness of CB Countermeasures

Increasing the chances of detection (by announcing special police patrols) was expected to be a very effective deterrent to speeding: 63.6 percent of the drivers surveyed felt that these announcements would cause "a lot" of reduction in the number of people speeding (see Table III.1). Although nondrivers were somewhat more skeptical, almost all of the drivers expected that these announcements would cause at least some reduction in speeding.

TABLE III.1

PERCEIVED IMPACT OF "ANNOUNCEMENT" AND "INTERCEPTION"  
USES OF CITIZEN'S BAND, FOR DRIVERS AND NONDRIVERS

	Announcements		Interception		
	Drivers	Nondrivers	Impact on Number of People Stopped for Speeding (Q. 2-23a)	Drivers	Nondrivers
Impact on Number of Speeders (Q. 2-22a)					
Reduced a Lot	63.6	62.3	Increased a Lot	43.3	55.7
Reduced a Little	29.5	18.0	Increased a Little	47.6	26.2
Not at All	5.5	14.8	Not at All	6.7	6.6
Undecided	1.4	4.9	Undecided	2.4	11.5
Total	100.0	100.0	Total	100.0	100.0
	(417)	(61)		(416)	(61)
Impact on Speeding in Other Areas (Q. 2-22b)					
Reduced	23.0	36.1			
Stay the Same	52.3	27.9			
Increase	23.7	24.6			
Undecided	1.0	12.4			
Total	100.0	100.0			
	(417)	(61)			

An important issue associated with announced police patrols is what the effect would be on speeding in other areas. On the one hand, these announcements could be taken to mean that there are no patrols in other areas, thereby causing an increase in speeding in those areas. On the other hand, the announcements could make drivers more cautious overall, thereby causing a reduction in speeding in unpatrolled areas as well.

Slightly more than half of the drivers (52.3 percent) expected no change in the amount of speeding that would occur in areas not covered by the announcement. For the remaining drivers, the distribution of opinions were equal with respect to both a positive and negative carryover from the announcements: 23 percent of the drivers expected a reduction in speeding in other areas; 23.7 percent expected an increase. Despite the high level of effectiveness expected within patrolled areas, relatively few drivers generalized that effect to other areas.

In comparison, lower gains were expected from using CBs to intercept drivers' communications about advance announcements of speed patrols. Approximately half (47.6 percent) expected only "a little" increase in the number of people stopped for speeding; 43.3 percent expected "a lot" of increase (see Table III.1). These mixed results about how much additional speed control would be realized from monitoring CBs and redeploying patrols may reflect drivers' opinions about (1) the amount of such communication that takes place, and (2) whether police patrols would be able to stop a greater number of speeders than they currently stop by intercepting communications.

Demographic Variations. Table III.2 shows the distribution of perceived effectiveness of both CB methods by demographic characteristics of the drivers surveyed. Expectations about the effectiveness of both advance announcements and the interception of driver communications varied by region of the country. Drivers in the Northeast and in the West had widely disparate opinions about the effectiveness of advance announcements. A much higher percentage of drivers in the Northeast expected "a lot" of reduction. Drivers in the West were least likely to expect that announcements about patrols would reduce the number of speeders "a lot."

In comparison with the three other regions, drivers in the West were also least likely to expect that the police-interception method would have "a lot" of effectiveness. In the West, only 27.6 percent of the drivers expected "a lot" of increase in the number of speeders stopped; in the other three regions, an average of 45 percent of the drivers expected "a lot" of increase.

It is pertinent to note here that these regional differences are commensurate with attitudes toward the 55 mph speed limit. Drivers in the Northeast were most likely to support and to comply with the 55 mph limit. Drivers in the West were at the opposite pole: they were least likely to both support and comply with the 55 mph limit.



Perceptions of how effective the CB countermeasures would be did not vary across sex, age, and income subgroups. However, a relationship did exist between the amount of impact attributed to the interception method and the educational level of drivers. Drivers with higher educational levels (any college) were less likely to expect "a lot" of increase in the number of speeders apprehended. Whereas 50.8 percent of the drivers with less than a high school education and 47.8 percent of the high school graduates expected "a lot" of increase, this expectation was held only by 35.8 percent of the drivers with a college-level education.

Ownership of CB Equipment. Driving a car equipped with a CB did not appear to be a factor in assessing the impact of CB countermeasures (see Table III.3). Drivers for whom these countermeasures would have personal implications, and who have had personal experience with CBs, apparently did not have different reactions to the uses of CB than did nonowners. If CB owners are taken to represent the "informed opinion," then it is worth noting that they also attributed a high level of effectiveness to advance announcements.

TABLE III.3

PERCEIVED EFFECTIVENESS OF "ANNOUNCEMENT" AND "INTERCEPTION" USES OF CITIZEN'S BAND, BY OWNERSHIP OF CITIZEN'S BAND EQUIPMENT

Reduction in Number of Speeders Resulting From Announcements (Q. 2-22a)	Ownership		Impact of Interception on the Number of People Stopped for Speeding (Q. 2-23a)	Ownership	
	Yes	No		Yes	No
Reduced a Lot	67.3	61.7	Increased a Lot	45.5	42.1
Reduced a Little	25.4	31.5	Increased a Little	43.6	49.8
Not At All	6.4	5.4	Not At All	10.0	5.4
Undecided	0.9	1.4	Undecided	0.9	2.7
Total	100.0	100.0	Total	100.0	100.0
	(110)	(295)		(110)	(295)

Attitude Toward Speed Limits. Drivers who preferred a much higher speed limit (around 65 mph or higher) had less confidence about the deterrent value of advance announcements about speed patrols than did drivers who preferred a lower limit (see Table III.4). Of the drivers who preferred a higher limit, 50.7 percent expected "a lot" of reduction in speeding, as compared to 63 percent of the drivers who favored the 55 mph limit. These findings suggest that drivers who have a "high-speed" orientation to driving were particularly skeptical about the fact that increasing the possibility of detection would alter speeding habits.

Expectations about how effective the CB interception method would be were fairly similar regardless of the speeding orientation of the respondents.

TABLE III.4

PERCEIVED EFFECTIVENESS OF "ANNOUNCEMENT" AND "INTERACTION" USES OF CB RADIO,  
BY PREFERRED AND TYPICAL DRIVING SPEED

Reduction in Number of Speeders Resulting From Announcements (Q. 2-22a)	Preferred Driving Speed			Typical Driving Speed		
	<55	56-60	61+	<55	56-60	61+
Reduced a Lot	63.8	63.2	50.7	60.5	65.0	54.8
Reduced a Little	26.9	26.4	34.7	30.0	25.0	30.6
Not At All	4.1	5.8	9.3	3.3	5.0	11.3
Undecided	5.2	4.6	5.3	6.2	5.0	3.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
	(268)	(87)	(75)	(210)	(160)	(62)
	p < .05					
Impact of Interception on Number of People Stopped for Speeding Q. 2-23a)						
Increased a Lot	44.4	36.8	37.3	40.0	44.4	40.3
Increased a Little	42.5	52.9	48.0	45.2	46.2	45.2
Not At All	6.0	4.6	10.7	6.7	4.4	11.3
Undecided	7.1	5.7	4.0	8.1	5.0	3.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
	(268)	(87)	(75)	(210)	(160)	(62)

b. The Propriety of CB Countermeasures

Regardless of whether CBs are used to provide information or to intercept information, the majority of respondents felt that these uses were proper (see Table III.5). Using CBs to announce speed patrols was considered proper by 71.2 percent of the drivers. Similarly, a large segment of the drivers surveyed (64.9 percent) found that monitoring CB communications and then patrolling the "safe" areas was also proper. Surprisingly, while nondrivers were generally more supportive than drivers of the methods designed to reduce speeding or other dangerous driving, nondrivers were more likely to consider both CB uses improper.

TABLE III.5

PROPRIETY OF "ANNOUNCEMENT" AND "INTERCEPTION" USES OF CITIZEN'S BAND, FOR DRIVERS AND NONDRIVERS

Propriety (Q. 2-22c)	Announcement		Propriety (Q. 2-23b)	Interception	
	Drivers	Nondrivers		Drivers	Nondrivers
Proper	71.2	68.9	Proper	64.9	54.1
Improper	24.2	26.2	Improper	30.8	36.1
Undecided	4.6	4.9	Undecided	4.3	9.8
Total	100.0 (417)	100.0 (61)	Total	100.0 (416)	100.0 (61)

Demographic Variations. Table III.6 shows drivers' opinions about the propriety of the two CB countermeasures, by demographic characteristics. The dominant opinion--that these uses are proper--remained fairly constant for all of the demographic subgroups, with one exception: the interception method received a disproportionate amount of support from drivers in the South. Objections to this use of CB were most likely in both the Northeast and the West.

Ownership of CB Equipment. Owners and nonowners were equally likely to regard the two uses of CB for speed control as proper (see Table III.7). Drivers who would personally be affected by the CB countermeasures were no more likely to consider them improper than drivers for whom the issue was more remote.

TABLE 111.6

PERCEIVED EFFECTIVENESS OF "ANNOUNCEMENT" AND "INTERCEPTION" USES OF CB RADIO,  
BY DEMOGRAPHIC CHARACTERISTICS

Propriety of Announcements (Q. 2-22c)	Education													
	Region				Sex		Age			< High School	High School Grad	Any College	Income	
	NE	S	MW	W	M	F	< 30	30-44	45+				< \$12,000	\$12,000+
Proper	71.3	68.9	68.4	64.5	68.8	73.9	69.2	73.3	70.1	70.1	75.5	67.9	71.4	71.5
Improper	20.8	22.2	23.9	28.9	28.0	20.1	28.5	21.5	23.8	20.9	21.4	28.4	23.5	24.8
Undecided	7.9	8.9	7.7	6.6	3.2	6.0	2.3	5.2	6.1	9.0	3.1	3.7	5.1	3.7
Total	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)	100.0 (218)	100.0 (199)	100.0 (130)	100.0 (135)	100.0 (147)	100.0 (67)	100.0 (159)	100.0 (187)	100.0 (98)	100.0 (295)
Propriety of Interception (Q. 2-22b)														
Proper	54.5	68.1	62.4	61.8	67.9	61.6	60.0	66.7	68.0	65.7	66.1	64.7	61.2	67.1
Improper	38.6	21.5	27.4	35.6	28.0	33.8	39.2	25.9	27.2	29.8	28.9	31.6	32.7	29.9
Undecided	6.9	10.4	10.2	2.6	4.1	4.6	0.8	7.4	4.8	4.5	5.0	3.7	6.1	3.0
Total	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)	100.0 (218)	100.0 (198)	100.0 (130)	100.0 (135)	100.0 (147)	100.0 (67)	100.0 (159)	100.0 (187)	100.0 (98)	100.0 (295)
p < .05														

Attitudes Toward Speed Limit. Support for either the announcement or interception uses of CB was directly related to the degree of commitment to the 55 mph speed limit (see Table III.8). The differences were much larger for respondents who typically drive at over 60 mph: 38.7 percent of the high-speed drivers felt that the advance announcements were improper, as opposed to 20.6 percent of the drivers who drive at below 60 mph. Speeders (who were also less likely to believe that advance announcements would reduce speeding) were apparently much more inclined to feel that special speed patrols were an intrusion rather than a fair warning about the presence of additional patrols.

TABLE III.7

PROPRIETY OF "ANNOUNCEMENT" AND "INTERCEPTION" USES OF CITIZEN'S BAND,  
BY OWNERSHIP OF CITIZEN'S BAND EQUIPMENT

Propriety of Announcements Using CB (Q. 2-22c)	Ownership of CB		Propriety of Interception Using CB (Q. 2-23b)	Ownership of CB	
	Yes	No		Yes	No
Proper	74.6	69.8	Proper	64.6	65.8
Improper	25.4	24.1	Improper	31.8	29.8
Undecided	0.0	6.1	Undecided	3.6	4.4
Total	100.0 (110)	100.0 (295)	Total	100.0 (110)	100.0 (295)

TABLE III.8

PROPRIETY OF "ANNOUNCEMENT" AND "INTERCEPTION" USES OF CB,  
BY TYPICAL AND PREFERRED DRIVING SPEED

Propriety of Announcements (Q. 2-22c)	Preferred Speed Limit			Typical Driving Speed		
	<55	56-60	61+	<55	56-60	61+
Proper	70.1	67.8	64.0	70.0	71.2	56.5
Improper	21.7	21.8	30.7	20.5	20.7	38.7
Undecided	8.2	10.3	5.3	9.5	8.1	4.8
Total	100.0 (268)	100.0 (87)	100.0 (75)	100.0 (210)	100.0 (160)	100.0 (62)
					p < .01	
Propriety of Interception (Q. 2-23b)						
Proper	66.0	60.9	52.0	65.2	62.5	51.6
Improper	25.8	29.9	41.3	25.3	30.0	42.0
Undecided	8.2	9.2	6.7	9.5	7.5	6.4
Total	100.0 (268)	100.0 (87)	100.0 (75)	100.0 (210)	100.0 (160)	100.0 (62)
					p < .01	

Drivers who favored a speed limit of approximately 10 mph higher than 55 and who typically drive at approximately that speed were much more likely to feel that police interception of CB communications was improper. Whereas 25.8 percent of the drivers who favored the 55 mph limit felt that the interception method was improper, 41.3 percent of the drivers who preferred a speed limit of approximately 65 shared that opinion. Similarly, 25.3 percent of the drivers who reported that they observe the 55 mph limit indicated that interception was improper, versus 42 percent of the respondents who typically drive over 60 mph.

Opinions about Propriety as a Function of Effectiveness. The position that it is proper to use CBs to announce special patrols or to intercept information about unpatrolled areas was constant almost regardless of whether these uses were expected to be very or slightly effective (see Table III.9).

TABLE III.9

PROPRIETY OF "ANNOUNCEMENT" AND "INTERCEPTION" USES OF CB,  
BY PERCEIVED EFFECTIVENESS OF THESE USES

Propriety	Reduction in Number of Speeders as a Result of Advance Announcements (Q. 2-22a)			Impact of Interception of Patrol Information on Number of People Stopped for Speeding (Q. 2-23a)		
	Reduced A Lot	Reduced A Little	Not At All	Increased A Lot	Increased A Little	Not At All
Proper	75.5	67.5	52.2	67.8	67.7	46.4
Improper	21.9	26.0	43.5	26.7	29.3	53.6
Undecided	2.6	6.5	4.3	5.6	3.0	-
Total	100.0 (265)	100.0 (123)	100.0 (23)	100.0 (180)	100.0 (198)	100.0 (28)
	p < .05			p < .05		

Drivers who expected "a little" reduction in the number of speeders or "a little" increase in speed detection were as likely to consider the respective CB uses proper as drivers who expected "a lot" of effectiveness. Although very few of the drivers surveyed expected these uses to be totally ineffective, these drivers were much more likely to believe that these CB methods were improper.

c. Summary

The use of CB radios for purposes of speed control (either to announce special speed patrols or to identify areas that drivers report are unpatrolled) was, for the most part, acceptable to the drivers surveyed. A sizable proportion of drivers did consider these methods to be proper: 71.2 percent for the advance announcements, and 64.9 percent for the interception. Objections to these CB countermeasures (i.e., considering them improper) were concentrated among drivers oriented toward higher speeds. While the reactions of marginal speeders (those who drive between 56 and 60 mph) resembled the reactions of drivers who were committed to a 55 mph speed limit, more extreme speeders (drivers who preferred speed limits at approximately 65 mph, or who drive at higher speeds) were much more likely to feel that the CB countermeasures were improper.

While most of the drivers surveyed expected both CB uses to have at least some impact, a greater degree of effectiveness was attributed to advance announcements of patrols than to the use of CB for interception. Apparently, CB use directed at altering the speeding habits of drivers was expected to have better results than CB use which would support a speed-detection function. The findings also suggest that the immediacy and reality of speed detection were key factors in effectiveness: very few drivers expected that advance announcements about speed patrols would reduce speeding in unpatrolled areas.

A negative stance toward CB countermeasures (i.e., the feeling that they were improper and that they would be ineffective) was more common with respect to drivers in the West than in other regions. This is consistent with the finding that opposition to and noncompliance with the 55 mph speed limit was more concentrated in the West.

Owning CB equipment was not a factor in the acceptability of these countermeasures. The opinions of drivers who would personally be affected by CB announcements or by the interception of information were very similar to the opinions of nonowners of CBs.

## 2. Newspaper Reporting

Newspaper reports of automobile accidents are a routine part of news coverage about residents and incidents in the community. These reports provide information primarily about the consequences of the accident, along with some background information about the individuals involved. The cause or reason for the accident is typically given secondary emphasis. The familiar aspects of newspaper reports of accidents dominated discussion of this countermeasure during the focus groups. Newspaper coverage was construed as reports on deaths, injuries, and damage, with public reaction ranging from fear of a similar personal experience to a sense of detached curiosity. At issue was whether reading newspaper accounts of accidents, no matter how emotional or dramatic, would make persons drive more carefully and cautiously. The unique feature of the newspaper-reporting countermeasure (providing information about how and why certain accidents happened in order to educate drivers about how to avoid accidents) was largely overlooked during the discussions.

The following description, taken from the survey questionnaire, was designed to emphasize the reporting of specific circumstances leading to the accident:

- Now I'd like to get your reaction to some other ways of getting people to drive carefully.

One idea is to have newspapers report in detail how selected accidents happened, instead of only reporting that there was an accident and who was hurt. Do you think that people who read such news reports would drive a lot more carefully, a little more carefully, or about the same as they do now?

Table III.10 shows the distribution of drivers' and nondrivers' opinions about whether the special newspaper reports would lead to more cautious and careful driving. Most drivers did not expect that reading about how accidents happened would have "a lot" of impact on driving behavior. One-third of the drivers surveyed (33.3 percent) expected that the reports would have no impact at all, and that people reading the reports would drive as normal. The largest segment of drivers (41.5 percent) expected that "a little" more care would be exercised if information were provided about how accidents happened. Relatively few drivers (23.1 percent) thought that people would drive "a lot" more carefully.

TABLE III.10

PERCEIVED EFFECTIVENESS OF NEWSPAPER REPORTING,  
FOR DRIVERS AND NONDRIVERS

Impact of Newspaper Reports on Readers' Driving (Q. 24)	Drivers	Nondrivers
Would Drive a Lot More Carefully	23.1	41.4
Would Drive a Little More Carefully	41.5	32.8
Would Drive about the Same as Now	33.3	24.1
Undecided	1.1	1.7
Total	100.0 (415)	100.0 (58)

Table III.11 shows drivers' opinions about the impact of newspaper reports, broken down by various demographic characteristics. Perceptions of effectiveness were related to both the educational and the income levels of the drivers surveyed. Drivers with less than a high school education were much more likely to expect that people would drive "a lot" more carefully: 36.4 percent of the drivers in the lower educational category expected "a lot" of change, as compared to 18.2 percent of the high school graduates. Similarly, 32.9 percent of the drivers with lower incomes, versus 20.8 percent of the drivers with higher incomes, expected "a lot" more care in driving as a result of reading the special accident reports.

More extensive reading, including newspaper reading, is typically associated with higher socioeconomic status. One interpretation of the survey results is that, since persons who are most likely to be exposed to these reports tended to attribute very low effectiveness to them, the merits of this strategy are questionable. An alternative interpretation is that, despite lower overall readership, people of lower socioeconomic status may be affected more by newspaper reports and may be more likely to draw on such reports for cues to daily living.

Variations in drivers' opinions about the impact of newspaper reports across the other demographic variables (region, sex, and age) were very slight..



### 3. Citizen Observers

The citizen-observer countermeasure is designed to expand current manpower capabilities for enforcing driving regulations. The enhanced enforcement function would be delegated to specially trained traffic observers, who would produce reports of unsafe driving actions and submit these reports to either the police or another government agency. Notifying drivers of their negligence would act as a deterrent to unsafe driving in the future.

Citizen observers are part of a series of countermeasures that promote careful and safe driving. The following description was used during the interview:

Another idea is for the government to train a staff of traffic observers to spot unsafe driving actions--such as weaving in and out of lane, tailgating, or not coming to a full stop at a stop sign. These traffic observers would be stationed at spots where many highway accidents happen. They would hand in reports of all unsafe driving incidents they see, along with the license plate numbers of the vehicles involved. These observers would not have any authority to stop anybody to arrest them or give them a ticket. However, their reports could be used by the police or other government agency to issue warning notices or tickets.

The idea of having citizens reporting to the government was a highly controversial issue during the focus-group discussions and was considered an onerous prospect. A dominant theme of this countermeasure was that a citizen traffic-observer program would lead to citizens reporting about occurrences other than dangerous driving. Discussants expressed strong interest in maintaining privacy and anonymity with respect to the government. A secondary set of concerns during the focus groups addressed issues of implementation: the qualification of the citizen observers (Would their observations be reliable? Would they be adequately trained?) and the distribution of the tickets or warning notices (How would the driver be identified?).

Paralleling the two types of issues identified during the focus-group discussions, the survey questionnaire included items on (1) public reactions to joint citizen and police involvement in dangerous-driving deterrence, and (2) the extent of owners' responsibility for moving violations by other drivers of their cars.

To help specify an acceptable law-enforcement role for citizen observers, public opinion was obtained along three dimensions:

- Overall Propriety of Using Civilian Traffic Observers

(In your opinion, would it be proper, or improper, for the government to use traffic observers in this way to identify vehicles that are driven in an unsafe manner?)

- Preferred Agency for the Receipt of Reports (Acceptability of Role of Police in Traffic Observer Program)

(The traffic observers would keep a record of license plate numbers of all vehicles observed committing driving violations. Should these records be turned in to the police or should they be turned in to another government agency?)

- Severity of the Penalty (Legal Status of Observed Violations)

(Do you think tickets, or just warning notices, should be issued as a result of these observations?)

Because notices or tickets would be distributed on the basis of license-plate numbers, the owner would receive the ticket. A key implementation issue is whether the responsibility should rest with the owner, even if he or she was not the person driving at that time. Two aspects of the ticket-distribution process were included in the survey:

- Owner Responsibility

(The ticket or warning notice will be sent to the owner. If someone else had been driving, should the owner be responsible anyway or should the ticket or warning notice be intended for the driver?)

- If Owner is not the Driver and Driver Should Get Ticket (Responsibility for Giving Ticket to Driver)

(If a ticket were issued, who should be held responsible for giving it to the person who was driving the car--the owner or the police?)

a. Acceptability of Citizen Observers

A favorable reaction to the citizen-observer program was expressed by 61.1 percent of the drivers; 38.7 percent opposed the program (see Table III.12). Nondrivers were much more supportive of citizen observers: 81.4 percent favored the program.

TABLE III.12

ACCEPTABILITY OF CITIZEN OBSERVERS,  
FOR DRIVERS AND NONDRIVERS

Acceptability (Q. 25)	Drivers	Nondrivers
Favor	61.1	81.4
Oppose	38.7	18.6
Undecided	0.2	0.0
Total	100.0 (416)	100.0 (59)

When acceptability of citizen observers is examined in relation to drivers' demographic characteristics, we find that very large differences occurred across educational levels (see Table III.13). Of the drivers with less than a high school education, 77.6 percent favored a citizen-observer program, as compared to 52.4 percent of the drivers with at least some college education. Approximately 25 percent more of the college-educated drivers than of the drivers with less than 12 years of education opposed citizen observers. These findings conform with the premise that concerns about surveillance and civil liberties are associated with higher educational levels. The automated speed-enforcement device (ASED) raised very similar concerns during the focus groups--namely, concerns about surveillance and undue government intrusion. The relationship between acceptability and education for the citizen observers conforms to the findings about the ASED, for which a much larger proportion of drivers with higher educations opposed the countermeasure.

b. The Appropriate Law Enforcement Role of Citizen Observers

The short-term implications of the citizen-observer program (namely, the severity of the penalty) was a more salient issue to the drivers surveyed than either the propriety of having citizen observers or having police play a key role in the program (see Table III.14).

TABLE III.13

## ACCEPTABILITY OF CITIZEN OBSERVERS, BY DEMOGRAPHIC CHARACTERISTICS

Acceptability of Citizen Observers (Q. 25)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	< 30	30-44	45+	< High School	High School Grad	Any College	< \$12,000	\$12,000+
Favorable	55.4	63.0	60.7	53.9	60.1	62.1	58.5	55.5	67.4	77.6	64.2	52.4	65.3	60.0
Unfavorable	41.6	30.3	35.9	43.5	39.9	37.4	41.5	43.8	32.6	22.4	35.2	47.6	34.7	39.7
Undecided	3.0	6.7	3.4	2.6	0.0	0.5	0.0	0.7	0.0	0.0	0.6	0.0	0.0	0.3
Total	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)	100.0 (218)	100.0 (198)	100.0 (130)	100.0 (135)	100.0 (147)	100.0 (67)	100.0 (159)	100.0 (187)	100.0 (98)	100.0 (295)

p &lt; .001

TABLE III.14

DRIVERS' OPINIONS ABOUT THE PROPRIETY OF CITIZEN OBSERVERS,  
PREFERRED AGENCY TO RECEIVE REPORTS, AND TYPES OF  
CITATIONS TO BE ISSUED

Propriety of Citizens Observers (Q. 27)		Recipient of Citizen Observer Records (Q. 26a)		Type of Citations To Be Issued (Q. 26b)	
Proper	63.7	Police	54.0	Tickets	9.9
Improper	33.2	Another Government Agency	22.9	Warning Notices	73.2
Undecided	3.1	Either (Volunteered)	1.7	Either (Volunteered)	2.4
Total	100.0 (413)	Neither (Volunteered)	16.1	Neither (Volunteered)	12.8
		Undecided	5.3	Undecided	1.7
		Total	100.0 (415)	Total	100.0 (414)

According to most of the drivers surveyed, driving transgressions detected by citizen observers do not warrant a ticket.

The propriety of using citizen observers to detect negligent driving was more likely to be supported than challenged. The majority of the drivers surveyed (63.7 percent) felt that the government's use of citizen observers was proper. Further, given a choice, drivers (almost 2 to 1) would rather have the police receive the citizen-observer records, instead of another government agency. It is noteworthy, however, that a certain segment of the drivers (16.1 percent) were opposed to turning in reports either to the police or to another government agency. Since this option was not presented to respondents, drivers volunteering this position represented clear-cut opposition to a government-sponsored citizen-observer program.

Less than 10 percent of the drivers indicated that the citizen-observer reports should result in tickets. For 73.2 percent of the drivers, the appropriate penalty for a negligent-driving incident reported by a citizen observer would be only a warning notice. This suggests that the acceptability and perceived propriety of this program depended on whether the citizen observers played a very limited law-enforcement role--while admonition tended to be supported, an action with legal implications was not.

Table III.15 shows drivers' opinions, by demographic characteristics, about the law-enforcement issues associated with the citizen-observer program. As with the overall acceptability of citizen observers, drivers' opinions about propriety, the role of police, and the severity of the penalty all varied with education. The proportion of college-educated respondents who thought that citizen observers were improper was twice that of respondents with less than a high school education: 42.2 percent versus 21.2 percent, respectively.

Highly divergent opinions between drivers with less than a high school education and drivers with some college were also evident with respect to the role of police: 70 percent of the drivers in the low-education category, as opposed to 41.7 percent in the high-education category, indicated that the citizen-observer reports should go to the police. Almost one-quarter (23 percent) of the drivers with higher educations felt that the reports should not be turned in either to the police or to a government agency.

Warning notices were clearly preferred over tickets within each educational level--especially for both high school graduates (by 76.7 percent) and drivers with higher educations (by 73.3 percent). Drivers with less than a high school education were much more likely than other drivers to indicate that tickets should be issued as a result of the observations. In contrast, drivers with post-high-school education were more likely to find that both tickets and warning notices were objectionable: 17.6 percent volunteered that neither should be issued on the basis of citizen observations.

Drivers' opinions about these law-enforcement issues varied only slightly by sex, age, and income, and they are not statistically significant. Differences across regions of the country were apparent only with respect to the question of who is to receive the citizen-observer reports. Drivers in the Northeast were especially likely to indicate "another government agency" or "neither." Turning the reports in to the police was most acceptable in the Midwest, in which 63.2 percent of the respondents opted for police (in contrast to only 39.6 percent of the drivers in the Northeast).

Relationship of Law Enforcement Issues to Acceptability of Citizen Observers. Support of the citizen-observer program was strongly related to drivers' opinions about the overall propriety of using civilians for traffic-observer functions (see Table III.16). Most of the drivers (87.4 percent) who felt that the program was proper also favored the program; only 11.7 percent of the drivers who felt that the program was improper favored it.

TABLE III.15

DRIVERS' OPINIONS ABOUT THE PROPRIETY OF CITIZEN OBSERVERS, PREFERRED AGENCY TO RECEIVE REPORTS,  
AND TYPE OF CITATIONS TO BE ISSUED, BY DEMOGRAPHIC CHARACTERISTICS

Propriety of Citizen Observers (Q. 27)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	< 30	30-44	45+	< High School	High School Grad	Any College	< \$12,000	\$12,000+
Proper	58.4	58.5	65.8	61.8	63.4	64.0	66.2	58.5	66.0	71.2	69.8	56.2	60.2	66.1
Improper	31.7	32.6	27.4	35.6	34.3	32.0	31.5	40.0	28.6	21.2	27.0	42.2	35.7	31.5
Undecided	9.9	8.9	6.8	2.6	2.3	4.0	2.3	1.5	5.4	7.6	3.2	1.6	4.1	2.4
Total	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)	100.0 (216)	100.0 (197)	100.0 (130)	100.0 (135)	100.0 (147)	100.0 (66)	100.0 (159)	100.0 (187)	100.0 (98)	100.0 (295)
p < .01														
Recipient of Citizen Observer Records (Q. 26a)														
Police	39.6	54.1	63.2	48.7	56.7	51.0	57.7	48.1	56.5	70.2	62.3	41.7	55.1	54.6
Another Government Agency	32.7	20.0	18.8	17.1	22.1	23.7	26.2	25.2	17.0	10.4	23.8	26.7	24.5	23.0
Either (Volunteered)	1.0	0.7	2.6	2.6	2.3	1.0	1.5	1.5	2.0	1.5	1.9	1.6	0.0	2.4
Neither (Volunteered)	17.8	14.8	11.1	18.4	14.3	18.2	12.3	20.0	16.3	10.5	10.0	23.0	11.2	16.3
Undecided	8.9	10.4	4.3	13.2	4.6	6.1	2.3	5.2	8.2	7.5	2.5	7.0	9.2	3.7
Total	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)	100.0 (217)	100.0 (198)	100.0 (130)	100.0 (135)	100.0 (147)	100.0 (67)	100.0 (159)	100.0 (187)	100.0 (98)	100.0 (295)
p = .05 <sup>a/</sup>														
p < .001 <sup>a/</sup>														

TABLE III.15 (Continued)

Types of Citations To Be Issued (Q. 26b)	Region				Sex		Age			Education			Income	
	NE	S	NW	W	M	F	< 30	30-44	45+	< High School	High School Grad	Any College	< \$12,000	\$12,000+
Tickets	8.9	7.4	16.2	3.9	11.1	8.6	11.5	8.1	10.3	19.4	10.7	5.9	13.3	9.0
Warning Notices	70.3	71.1	66.7	73.7	70.4	76.3	75.4	75.6	68.7	65.6	76.7	73.3	73.5	74.2
Either (Volunteered)	1.0	3.0	2.6	2.6	1.4	3.5	3.1	0.7	3.4	1.5	3.2	1.6	1.0	2.4
Neither (Volunteered)	13.9	10.4	8.5	17.1	15.7	9.6	8.5	14.1	15.6	9.0	8.8	17.6	9.2	13.0
Undecided	5.9	8.1	6.0	2.6	1.4	2.0	1.5	1.5	2.0	4.5	0.6	1.6	3.0	1.4
Total	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)	100.0 (216)	100.0 (198)	100.0 (130)	100.0 (135)	100.0 (147)	100.0 (67)	100.0 (159)	100.0 (187)	100.0 (98)	100.0 (295)

$p < .01^{a/}$

<sup>a/</sup> Because of small cell sizes (resulting in expected frequencies of less than 5) chi-square may not be valid.

On the other two dimensions, the dominance of a particular response category (having police receive the reports, and the issuance of warning notices and not tickets) makes the relationship to acceptability less clear-cut. While acceptability appeared somewhat greater among drivers who preferred a more stringent version of the program (police involvement, and ticketing on the basis of observer reports), the percentage differences are fairly small.

TABLE III.16

ACCEPTABILITY OF CITIZEN OBSERVERS, BY  
POSITION ON LAW ENFORCEMENT ISSUES

Propriety of Citizen Observers	Percent in Favor of Citizen Observers	Recipient of Citizen Observer Records	Percent in Favor of Citizen Observers	Type of Citation To Be Issued	Percent in Favor of Citizen Observers
Proper	87.4 (263)	Police	72.3 (224)	Tickets	75.6 (41)
Improper	11.7 (137)	Another Govt. Agency	70.5 (95)	Warning Notices	66.3 (303)
	P < .001	Either	57.1 (7)	Either	90.0 (10)
		Neither	9.0 (67)	Neither	11.3 (53)
			p < .001 <sup>a/</sup>		p < .001 <sup>a/</sup>

<sup>a/</sup> Because of small cell sizes (resulting in expected values of less than 5) chi-square may not be valid.

c. Owner Responsibility for Citations Resulting from Observations

One characteristic of the citizen-observer countermeasure is that the ticket or warning notice would be sent to the owner of the car. The issue of owner responsibility arises when the owner is not driving at the time of the violation: Should the owner be responsible anyway, or should the citation be intended for the driver? Furthermore, if the citation is considered the driver's responsibility, who should be responsible for giving the ticket or

warning notice to the driver--the owner or the police? Table III.17 shows survey results on both of these questions.<sup>1/</sup>

TABLE III.17

DRIVERS' OPINIONS ABOUT OWNER RESPONSIBILITY FOR CITATIONS  
RESULTING FROM CITIZEN OBSERVER REPORTS

Responsibility For Citation When Owner was Driving (Q. 26c)	Percent of Drivers	If "Intended for Driver": Respon- sibility for Giving Citation to Driver (Q. 26d)	Percent of Drivers (Initial Interview)	Percent of Drivers (Recontact)*
Owner Responsible	15.4	Owner	18.2	31.3
Intended for Driver	80.0	Police	77.6	65.6
Undecided	4.6	Undecided	4.2	3.1
Total	100.0 (410)	Total	100.0 (143)	100.0 (131)

\*See footnote for explanation.

<sup>1/</sup> A mechanical difficulty experienced approximately midway through the fielding of the survey resulted in an incorrect skip pattern after the question on owner responsibility. Respondents who indicated that the ticket/warning notice was "intended for the driver" should have been asked the follow-up question--namely, "Who is responsible for giving the ticket or warning notice to the driver?" For approximately half of the respondents who indicated "intended for driver," the follow-up question was omitted. When this was discovered, a second contact was made to cover the follow-up question. We were successful in recontacting 131 of the 185 respondents for whom the question was omitted. However, when the distribution of responses from the second set was compared with that from the initial interview, the distribution was significantly different ( $p < .05$ ). Distributions from the two interview waves are therefore presented separately.

The dominant opinion among the drivers surveyed was that car owners should not be responsible for violations incurred by other drivers of the car: 80 percent of the drivers felt that the ticket or warning notice should be intended for the driver of the car. Only 15.4 percent of the drivers felt that the owner should be responsible.

Opinions about owner responsibility varied with the age of the driver (see Table III.18). Placing responsibility with the owner was most likely for drivers over the age of 44. Whereas only 8.5 percent of the drivers under age 30 indicated that the owner should be liable, 19.7 percent of the drivers age 45 and older placed responsibility with the owner. Opinions about owner responsibility were similar across the other demographic subgroups.

Most drivers also felt that the owner should not be responsible for giving the citation to the driver. Although the distribution of drivers' opinions was different depending on whether the question was asked during the initial interview or with a recontact, the dominant response for both groups was that the police should be responsible for giving the citation to the driver of the car.

#### d. Summary

The citizen-observer program elicited favorable responses from 61.1 percent of the drivers surveyed. A similar proportion (63.7 percent) also felt that the government's use of civilian traffic observers was proper. When acceptability was examined further, two sets of findings emerged:

- Low intrusion on the driving public was preferred.

Regardless of acceptability, drivers largely construed the citizen-observer program as having low personal risk (i.e., without the stringency and legal implications associated with police law enforcement). Drivers overwhelmingly rejected the idea of giving tickets for observed violations. Drivers also strongly rejected making owners responsible for any negligent driving on the part of other drivers of the car. Individual drivers should be held responsible, and the accountability burden (identification of drivers and distribution of citations to correct drivers) should be with the police.

- Higher levels of rejecting the citizen-observer program were found among drivers with higher educations.

Education was a significant differentiating factor in drivers' reactions to the overall acceptability of the citizen-observer program and to reactions to each of the

TABLE III.18

RESPONSIBILITY FOR CITATION WHEN OWNER IS NOT DRIVING,  
BY DEMOGRAPHIC CHARACTERISTICS

Responsibility of Citation When Owner Is not Driving (Q. 26c)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	< 30	30-44	45+	< High School	High School Grad	Any College	< \$12,000	\$12,000+
	Owner Responsible	18.8	13.3	14.5	11.8	17.8	12.8	8.5	17.0	19.7	16.4	14.5	15.8	18.6
Intended for Driver	71.3	77.0	76.1	77.6	78.0	82.1	88.5	77.0	72.8	80.6	83.0	77.0	78.3	81.2
Undecided	9.9	9.6	9.4	10.5	4.2	5.1	3.1	6.0	7.5	3.0	2.5	7.1	3.1	4.4
Total	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)	100.0 (214)	100.0 (196)	100.0 (130)	100.0 (135)	100.0 (147)	100.0 (67)	100.0 (159)	100.0 (183)	100.0 (97)	100.0 (292)

p &lt; .05

law-enforcement dimensions. Opposition to citizen observers became increasingly more likely as educational level increased. The same pattern occurred for (1) propriety of having citizen observers (perceptions of impropriety increased with higher educational level); (2) turning reports over to the police (drivers with higher educations were much less likely to favor police involvement); and (3) issuing tickets (drivers with higher educations were less likely to favor ticketing).

### C. SPECIAL INTEREST STUDY

*Special-interest perspectives were included in this research in an effort to identify expert and leadership opinion about highway-safety countermeasures. The reader is cautioned, however, that respondents in this study do not constitute a statistically representative sample, and their reactions to the countermeasures should not be generalized to special-interest groups as a whole. Further, although respondents were selected because of their affiliation with certain groups and they responded from that vantagepoint in most cases, they were not acting as official spokespersons for those groups and their position should not be construed as the official position of that organization. Readers should consult Volume I (Chapter II) of this report for a detailed description of the methodology employed for the special-interest study.*

*The following reactions by special-interest groups were based on brief and very general descriptions of the countermeasures. The intent was to represent the overall concept and to allow specific issues and areas of concern to surface through informal, open-ended discussions. It is important to recognize that the reactions represent opinions and judgments and are not necessarily definitive analyses of the highway-safety issues discussed. Special-interest perceptions of these countermeasures are especially useful to highway-safety planners in formulating appropriate educational programs and implementation strategies.*

The three negligent-driving deterrence countermeasures were described to special-interest respondents as follows:

With Newspaper Reporting, newspapers would describe in detail how selected accidents happened, instead of reporting only that there was an accident and who was hurt.

With Citizen Reporting, the government would train a staff of traffic observers to detect unsafe driving actions--such as weaving in and out of lanes, tailgating, or not coming to a full stop at a stop sign. These traffic observers would be stationed at spots where many highway accidents occur. They would hand in reports of all observed unsafe-driving incidents, along with the licenseplate numbers of the vehicles involved. These observers would not have any authority to stop individuals to arrest them or give them a ticket. However, their reports could be used by the police or other government agencies to issue warning notices or tickets.

Citizens' Band (CB) Radio would be actively used by police to deter speeding. It could be used in two ways:

1. Announcements would be made that, for the next few hours, special police patrols would be in effect on certain streets and highways.
2. The exchange of information among drivers as to whether or not a particular stretch of highway was being patrolled would be intercepted by police; police would then patrol the area considered safe.

#### 1. Newspaper Reporting

Public education on highway-safety issues is a major responsibility for many of the special-interest respondents, and there were numerous reports of mass-media campaigns that resemble the newspaper-reporting countermeasure. For example, an AAA respondent described a program in which accident scenarios were reconstructed from motor-vehicle reports. An insurance respondent described a program in which investigative reporting examined the driving histories of persons involved in accidents. A number of highway-safety, state-police, and police-chief respondents reported that they regularly send features and news releases on accidents and other highway-safety-related issues to area newspapers. As a whole, respondents were well-informed and opinionated about the difficulties of instituting a newspaper-based program.

The dominant theme in special-interest reactions to newspaper reporting was the feasibility of putting this countermeasure into effect. First, respondents were very skeptical that newspapers would cooperate. Second, reports on the causes of accidents would raise legal issues, possibly causing lawsuits and prejudicing court cases. Third, in some instances, it may not be possible to definitively identify the causes, or the circumstances surrounding accidents may be too complicated to be instructive to the driving public. A second theme in special-interest reactions to newspaper reporting was whether such reporting could effectively improve persons' driving behavior. Before discussing each of these issues in detail, the orientations of certain special-interest groups can be pointed out.

##### a. Group-Specific Reactions

It is important to stress that, within each of the special-interest categories, there were some respondents who were supportive and enthusiastic, and some who did not find any merit to the countermeasure and were thus strongly opposed. The following reactions were more likely to be expressed by respondents from certain groups, but they should not be considered the only, or the exclusive, opinions of those groups.

Highway Safety Representatives, State Police, and Police Chiefs.

Respondents from these three groups were especially skeptical about newspapers being interested in implementing this type of project. Since newspapers are business organizations, they were thought to be interested only in either very popular (sensationalist) or publicly acceptable ("no gory details") material.

Insurance Industry, Bar Association, and ACLU. Respondents from these groups identified various legal liabilities that would thwart a newspaper-reporting program. Reporting how accidents happen may interfere with claims settlements and court cases; allegations about persons at fault may involve newspapers in lawsuits.

AAA. Respondents from this group tended to be positively disposed to the idea of promoting safety through education. Their concerns were with the ability of reporters and law-enforcement officials to develop high-caliber material that would also have public appeal. "Selling safety" was considered a difficult job, requiring stronger reporting and public-relations skills than may be currently available among police public-information officers.

Trucking and Auto Dealers Associations. Trucking-association respondents tended to be hostile toward the press; the general sentiment was that truckers have been maligned by the press and are often erroneously held responsible for highway accidents. Auto-dealer respondents felt similarly scathed, arguing that when accidents are attributed to cars (e.g., the Pinto) the driver is actually the one who is frequently responsible for the accidents. The precedent for an anti-truck bias led to reservations about a newspaper-reporting program.

b. Newspaper Cooperation

Given that a government agency cannot dictate newspaper policies, decisions about having a newspaper-reporting countermeasure would have to be made by the newspapers themselves. Newspapers, however, were not expected to be cooperative and may be impervious to such requests: "[I am] not sure newspapers would do it." "It would be hard to get them to do it." "The media may not want to get into it; they do as much as they want to now." Newspaper disinterest was attributed to the fact that educational columns would not meet newspaper criteria for eye-catching and dramatic headlines. The preference of newspapers for novel occurrences would preclude having systematic, detailed reporting on accidents:

"Are newspapers going to want to print such material? I doubt it. They usually only print data on special freak accidents." (Highway-safety department respondent)

"Newspapers have to sensationalize their writing or the papers won't sell. They won't want to tell how accidents happened." (Auto dealers association respondent)

"Newspapers may distort priorities by playing-up not the most unsafe intersections but the ones which yield flashier copy." (Highway-safety department respondent)

Another reason that newspapers may not cooperate is that they do not have the staff nor the resources to launch special projects, and that the projects would require "a lot of effort on their part." In the experience of a state-police respondent, reporters were just too busy to gather the details: "Reporters only want where, when, who was killed, whose fault, and who was drinking."

Newspapers may also be subject to public pressure not to expose the details of an accident. A highway-safety respondent saw this as a "right-to-know issue," and pointed out that newspapers often overlooked the "bad personal habits of victims" out of consideration for friends and relatives. Another highway-safety respondent felt that the reporting would be counter to the local-privacy ethic, and would therefore be overridden by public protest: "People are very community-oriented here. Privacy is respected."

### c. Legal Issues

The legality of the newspaper-reporting countermeasure depends on newspapers voluntarily choosing to include certain material. Freedom of the press was cited by ACLU respondents as a potential issue. Newspapers could not be required to include this type of column, nor could they be told what must be covered for any particular accident.

Most respondents assumed that these special reports would be printed fairly soon after the accident occurred, before a final determination was made about the cause of the accident, and who was to blame. Because accidents frequently involve contention about fault and liability, there was great concern that newspaper reporting would interfere with the legal process. An insurance respondent described the problem as follows:

"[Newspaper reporting] could prejudice court cases if conclusions are reached in the papers. The insurance industry would oppose this. Articles would be written too hurriedly. [They] would not be able to accurately gather the facts in time, and the resulting erroneous article would affect liability and claims."

Along these same lines, a bar-association respondent objected because it "could influence jury selection if too much information is used."

Some respondents also felt that if newspapers printed information which would implicate any of the drivers involved, they would leave themselves open to lawsuits. In particular, bar-association respondents expected that the rush to provide details would lead to slander suits. An ACLU respondent, however, was of a diametrically different opinion, and staunchly defended the license and prerogatives of a reporter:

"The question of libel, etc., is not a problem. Since it is important that newspapers be free, it is therefore necessary to accept a certain amount of reckless reporting. You cannot have libel or defamation laws if [they] restrict a reporter."

#### d. Accuracy and Quality of Reporting

Again, it is important to note that respondents assumed that these special reports on accidents would replace regular newspaper coverage of those accidents, thus requiring a very quick determination of the circumstances involved. A bar-association respondent was incredulous that this could be done: "It takes years to decide who was at fault in an accident or how it happened. How is someone going to decide that quickly?" A state-police respondent was unsure whether it could be done: "Quite often it's difficult for an officer to reach a conclusion so fast." A number of respondents expressed the viewpoint that determining how an accident happened was a significant responsibility, and reservations were expressed about the accuracy of the proposed newspaper reports. The need for knowledgeable reporting was stipulated by a trucking-association respondent: "Unless newspapers are going to go into this with professionals who know what they're doing, you're letting reporters assess fault."

Trucking-association respondents were especially skeptical about the quality of special newspaper reporting, because they felt that truckers have received such bad press. The following comments illustrate the concern that more detailed reporting would be especially detrimental to truck drivers:

"No reporter can reconstruct the accident. Papers mis-report accidents, especially with respect to trucks."

"[Trucking Association] objects to the sensationalism of articles where trucks are involved in accidents. If it were a drunk in a pickup, it's still reported as a truck."

"Trucks are always the ones blamed for accidents. In fact, other drivers often cause problems for truckers. Jack-knifing is caused by fast braking, and fast braking happens when people pass a truck, pull in front, and slow down. When jack-knifing occurs, trucks get all the publicity for causing accidents and traffic problems."

e. Impact of Newspaper Reporting On the Public

Effectiveness. Two types of benefits were attributed to the newspaper-reporting countermeasure: (1) it could be effective in preventing certain accidents, and (2) it could provide an opportunity to bring poor enforcement practices to the attention of the public. In terms of impact at the individual level, positive reactions tended to be fairly low-key: it was considered a "good idea" because "people might learn something," "it would make people conscious of problems," and "it couldn't hurt." Several respondents mentioned that there was a need for additional reporting and for improved coverage of accidents. A bar-association respondent indicated that a series of articles on driving habits and specifically on "the possible cost of bad driving to drivers" would be instructive. An AAA respondent was very confident that if people read articles they could identify with, they would change their driving habits. Another AAA respondent wanted to be involved in making this special reporting a full-fledged and ongoing effort:

"AAA would assign people to help editors with stories. [We would] need a full-time reporter on it to get papers' cooperation. [We] could design a special police form to include details of accidents or could do one accident a week with diagrams."

As a secondary benefit of newspaper reporting, the increased attention given to highway accidents would highlight inadequacies with the enforcement system, which could possibly lead to reforms of that system. In addition to sensitizing people to dangerous situations, expanded press coverage of the accidents was also expected to increase public awareness of the prevalence of lax enforcement. A state-police respondent felt that public pressure would cause more stringent controls: "There wouldn't be as many people going unpun-

ished for car crimes because the public wouldn't put up with it." Based upon his experience in probing accident cases, an insurance respondent felt that the newspaper-reporting countermeasure had great potential as a forum for investigative reporting:

"Years ago we proposed a campaign just like this. We investigated one accident where a woman failed to stop at a stop sign and hit a school bus which turned over and hit some kids. We found she had 9 previous tickets on this. The history of the courts was terrible also. Each time, they had not checked her previous record. Here the newspaper should take on the judge and let society know that this judge refused to remove her license. It would be excellent if newspapers did a good job and attacked the real problem of poor recordkeeping and judicial negligence."

Ineffectiveness. Since the newspaper-reporting countermeasure is directed at the public in general, effectiveness depends, first, on people reading the accident reports and, second, on people altering their behavior accordingly. The effectiveness of newspaper reporting was questioned on both counts.

Newspaper reports on accidents were not thought to be widely read, except if friends or relatives were involved or if the accident was especially gruesome or noteworthy. Thus, readers who are interested in accident reports may be particularly unlikely to be interested in educational material. The following comments suggest that the newspaper-reporting countermeasure may be based on a misconception about news-reading habits:

"People do not read about accidents unless it is a friend."  
(Insurance industry respondent)

"People wouldn't pay attention to how it happened, but who and how badly people were hurt. Safety really doesn't sell with the public." (Insurance industry respondent)

"We have accurate accounts now of most accidents, but people are apathetic toward accidents unless personally touched." (Trucking association respondent)

"You don't need more detail on how they happened. People don't read 'how to do it' bits." (Bar association respondent)

Newspaper reporting was also criticized as a strategy for behavioral change. Some respondents took the position that people do not form their behavior on the basis of news. Reactions such as "people won't learn from it"

and "this wouldn't change behavior" were echoed by a number of respondents. A bar-association respondent stressed that news does not have an educational impact, and that, in fact, as a coping mechanism, people tend psychologically to disassociate themselves from news events, with the attitude that incidents reported on the news just would not happen to them.

## 2. Citizen Reporting

Special-interest reactions to the citizen-reporting countermeasures were almost unanimously negative. The program prompted analogies to be drawn to vigilante groups and to a "1984 mentality." The program was objectionable in concept ("Government should not send people out to spy on each other."), because it would distort the existing law-enforcement system ("Officers should do this, not citizens."), and because it was open to a great deal of abuse by the citizen observers. The citizen observers themselves were the target of much of the criticism directed against this program--a dominant concern was that the job would attract particular types of people ("amateur detectives" or "power-oriented" persons) who would be overzealous or arbitrary in an observer role.

### a. Special-Interest Viewpoints

Three perspectives can be identified that reflected the orientation of certain special-interest groups. Respondents affiliated with enforcement groups envisioned inordinate complications on an administrative level; too, the program may have to confront legal challenges about due process and about what the basis of authority would be for issuing warning notices and tickets. For the trucking associations, observation and reporting on drivers was an established practice, and these respondents tended to be positively disposed toward the citizen-reporting program.

Enforcement Perspective. State-police and police-chief respondents objected strenuously to establishing yet another law-enforcement stratum; the existing system was thought already to be too complex and bureaucratic. The training of such observers in and of itself would require a full-fledged and experienced effort. Further, in most states, the process for issuing tickets is rigorously controlled and subject to specific criteria (such as personally observing the violation) that would not be met by this program. Another concern expressed by enforcement respondents was the additional burden this type of program would place on already overburdened staff. "Who would do the filing, the ticketing?" was seen as an acute problem. Given current manpower shortages, and the expectation that this program would create chaos in the community,

enforcement respondents felt that the resulting demands on police time would make this program untenable.

Legal Perspective. Legal provisions for due process when a person is accused of a crime (or violation) include having the right to a "day in court," the right to confront one's accuser, and the right to cross-examine the accuser. Bar-association respondents stipulated that citizen observers would therefore have to be deputized and could not remain anonymous. From a civil-liberties standpoint, the citizen-reporting countermeasures could be considered an extension of the existing rights of citizens, and therefore, in principle, would not transgress any constitutional rights. In practice, however, the program has the potential for abuses along several lines. One issue is the disposition of the citizen-observer reports: they could conceivably be used to create surveillance files on individuals. A second issue is the objectivity and reliability of the observers: observations could be used to discriminate against certain people. Third, since observers would be acting both as prosecutors and witnesses, it may be self-serving for them to seek out and "find" violations.

Positive Perspective. An observer-type program apparently is used actively by trucking companies and trucking associations as a way to monitor drivers. Unmarked patrols keep a watch on truckers and report violations to the trucking companies; rewards are sometimes given for compliance with the speed limit and for good driving records in general. Trucking-association respondents tended to be enthusiastic about the effectiveness and acceptance of this approach. The "cooperative road patrols" turn in a great many reports that lead to reprimands or other actions to make drivers adhere to trucking regulations and policies. As truckers have stated, "Knowing that someone is looking over your shoulder is a good deterrent." For trucking-association respondents, support for the citizen-observer program stemmed directly from positive experience with their own road-patrol systems. Respondents did stress, however, that the success of this type of program depended on the professionalism, expertise, and objectivity of the observers.

b. The Citizen Observers

What persons would be selected as citizen observers was a central issue in special-interest reactions to this countermeasure. There was an implicit assumption in respondents' reactions that this program would attract, and would employ, only certain "types" of people, who would have ulterior purposes for being observers. Reactions such as "It's offensive," "You'll get people who

want to use power," and "All kinds of nuts would love to play junior sheriff" suggest that a primary factor in respondents' opposition to this countermeasure was that the character and motivations of the observers would be suspect. The notion of citizen observers elicited a variety of comparisons and labels; as indicated by the following pejorative terms, the program was expected to cater to, or to lead to, attributes inappropriate for a serious highway-safety program: "amateur Dick Traceys," "junior-grade Barney Fifes," "police-buffs," "self-styled experts," "tattletales," "nitpickers," "crackpots," "witch-hunters," "bounty-hunters," and "vigilantes." Along these same lines, the program was thought to be rife for abuse by the observers: "People would report on their enemies." "They would take out their personal vendettas." "It would be scary if people reported out of spite." Aside from the potential for abuse by observers, consistent and objective detection of traffic violations was considered a very difficult task, and, as pointed out by a trucking-association respondent, the process may be subject to error or zealotry: "It is difficult to decide what is and is not a violation. Some people may overreact."

c. Opposition by the Public

Public reactions to this program were expected to be very strong and very hostile. From an ideological standpoint, a bar-association respondent found this program "incompatible with American values," and was certain that a program in which "the government has citizens reporting on other citizens" would not be tolerated. In gauging public attitudes toward the citizen-reporting countermeasure, several special-interest respondents predicted extreme reactions; the public would consider observers to be "spies," which would lead to "a great public backlash" and "hostile inflammatory reactions." Other comments on opposition from the general public include:

"People would see them as spies. There would be a lot of objection to it." (ACLU respondent)

"Public would relate it to 1984 and 'Big Brother' and everyone spying. Public outcry would end the issues." (Insurance industry respondent)

"Drivers are very volatile in [State] and would react hastily and might attack the observers." (AAA respondent)

#### d. Enforcement is a Police Function

An underlying issue characterizing most of the responses to this countermeasure, and particularly apparent in the state-police and police-chief reactions, was the advisability of blurring the line between civilian and police functions. There was a general sense that citizen observers should not be given authority to routinely detect violators, since law-enforcement roles and functions carry certain connotations, and since the authority to act in a law-enforcement capacity is formally vested in police officers. The right to perform a "citizen's arrest" was interpreted as necessary only for emergency contingencies. As expressed by a state-police respondent, "You can't have low-level police officers." A police chief stated, "It's a police function; keep citizens out."

From a very different vantagepoint, the citizen-observer program was opposed because existing enforcement staffing levels were more than adequate to handle the job. Enforcing traffic violations should be handled by the police because adding staff to cover functions now assigned to the police was a duplication of the effort and therefore unacceptable. The following comments imply that a citizen-observer program would be a needless and wasteful government expansion:

"Isn't this what we're paying the police and the highway patrol to do? Trained citizens are ridiculous. We have enough regulatory agencies. We don't need citizen reporters. The agencies get paid for it." (Trucking association respondent)

"I'm against the government training any more people to do the job of the local police." (Auto dealers association respondent)

#### 3. Citizen's Band Radio

Reactions to the citizen's-band (CB) countermeasure typically took the form of a vote--it was simply considered either effective or ineffective. Very few issues were raised in conjunction with CBs; their use by both drivers and police was widely acknowledged and accepted, and did not pose any resounding controversial problems. Although respondents were presented with two proposed uses of CB radio, many reactions addressed the utility of CBs as a whole for speed-enforcement purposes. Thus, the first section below covers general reactions, which are then followed by more specific assessments of the announcement and monitoring uses of CB.

a. Use of CB for Speed Enforcement

According to state-police and police-chief respondents, both of the proposed uses are relatively common practices at this time--either as an official policy or at an officer's initiative in conducting highway patrols. CB radios, however, were not in and of themselves considered to be an especially valuable speed-enforcement tool. For the most part, they seem to have been adopted by police in reaction to their public popularity and as a way to control the undetected speeding made possible by CB use among drivers. A state-police respondent speculated that this may be a battle the drivers are winning. Regardless of how police use the CB system, it seems that speeders can frequently be forewarned of "Smokey's" presence: "Unmarked cars are easily detected by CBers, making deception problematical." An auto-dealer respondent was more direct: "Police can't beat the CB people."

Taking this argument a step further, a police chief argued that CBs are "unnecessary; the appearance of a patrol car is most effective." An insurance respondent concurred, "Police cars are the best deterrent, and there should be decoy cars used to slow people down."

Nonenforcement respondents were sometimes perplexed about why these uses were being presented as special or unusual strategies. Not only were they assumed to be a routine practice, but they were not regarded as particularly noteworthy countermeasures:

"This is bordering on the trivial, but we don't oppose it."  
(Highway-safety department respondent)

"It doesn't make sense as some special procedure. Of course police should do this." (Bar association respondent)

"The two methods are but good police practice, [but] actually are very insufficient." (Trucking association respondent)

Another reason why respondents did not give these countermeasures very much attention was that the popularity of CBs was thought to be waning. This reaction was almost unanimous among auto-dealer respondents ("CBs are a thing of the past." "The fad is really going now."), but was also expressed by insurance ("The CB craze is over.") and trucking-association ("CBs aren't used very much anymore.") respondents.

b. Announcements

Radio and television stations in some cities apparently already make announcements of this type. There was no agreement, however, on the effectiveness of this approach. Thus, a highway-safety respondent in one state said, "We do it here. It's effective. It's worthwhile." In another state, a highway-safety respondent stated, "It's done now. It's not too effective." Several reasons were cited why the announcements have not proved to have an impact on the speeding problem. First, a state-police respondent cited studies his state had conducted which showed that the information was disregarded, and that "people speed anyway." Second, an AAA respondent reported that "drivers avoid the patrolled road, and find alternate routes to work." Third, a trucking respondent noted that announcements "only deter in that area and nowhere else," which causes speeding problems outside the zone in which the police are patrolling. The announcement countermeasure also raised the concern that it would be unfair to non-CBers not to be privy to police information. One respondent (ACLU) was vehemently opposed to the use of CB because it made CBers a "privileged class"; by not informing non-CBers of the patrols, it made them more vulnerable to being caught.

c. Monitoring

Among the issues associated with this use of CB, the most prominent was whether it involved illegal surveillance. Only one respondent (bar association) unequivocally opposed it on privacy grounds: "[It is] too akin to eavesdropping, wire-tapping, and invasion of privacy." Other respondents from ACLUs were uncomfortable with the method ("[It] goes against my grain."), but conceded that it was in fact a valid police use of CBs:

"It is close to entrapment, but the law has equal access to the bands. [Police are free to use it] if people are trying to break the law through the use of CB."

"CB is a medium where anyone can intercept, and there is no expectation of privacy."

Monitoring was also considered impractical: "The availability of manpower is not there." Since effective use would require extensive manpower which is unavailable and is a handicap in speed enforcement as it stands, for many respondents a program along these lines did not have practical significance. Finally, respondents pointed out that a technical limitation on the effectiveness of monitoring was the three-mile range of CB reception.

#### 4. Summary

Reactions to the newspaper-reporting countermeasure showed clear differences along special-interest lines. AAA respondents were strong proponents of a public-education approach to highway safety; this organization would be a significant resource in the implementation of a newspaper-reporting program. Highway-safety, state-police, and police-chief respondents tended to be skeptical about whether newspapers would cooperate with this type of program--educational reports were regarded as inconsistent with newspaper interest in dramatic stories. Respondents affiliated with bar associations, the ACLU, or the insurance industry stipulated that such reports not interfere with claims settlements and court cases.

In contrast to the generally positive response to the concept of newspaper reporting, special-interest reactions to the citizen-reporting countermeasure were almost unanimously negative. To a large extent, resistance to this program centered on the nature and motivation of the citizen observers themselves--the program was seen as empowering people to play junior-sheriff roles. Respondents affiliated with enforcement groups took the position that law-enforcement authority was formally vested in a police officer; there was specific concern that establishing a quasi-police force would generally blur the line between civilian and police domains. Favorable response to this program can be associated only with trucking-association respondents; support stemmed from their positive experience with similar monitoring programs conducted by trucking associations.

The use of CB radios for speed-enforcement purposes was widely acknowledged and accepted as a routine practice. These countermeasures did not elicit very much discussion among special-interest respondents.

APPENDIX A

SPEED DETECTION TABLES, BY  
DEMOGRAPHIC CHARACTERISTICS



TABLE A.2

DRIVER PERCEPTIONS OF ACCURACY, EFFECTIVENESS, AND FAIRNESS  
BY SPEED DETECTION METHOD AND SEX

	RADAR		VASCAR		SPEEDOMETER		ASD		
	M	F	M	F	M	F	M	F	
<b>Accuracy</b>									
Very accurate	22.6	20.7	22.3	21.2	19.7	25.6	28.6	31.0	
Fairly accurate	49.0	61.2	45.1	49.8	51.7	45.4	46.7	49.1	
Inaccurate	23.5	12.8	22.3	20.3	27.1	27.8	20.6	17.7	
Undecided	4.9	5.3	10.4	8.8	1.5	1.3	4.0	2.2	
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
	(204)	(227)	(202)	(227)	(203)	(227)	(199)	(226)	
	p < .01								
<b>Effectiveness</b>									
Very effective	45.3	38.3	23.8	26.0	35.6	35.7	32.0	36.3	
Fairly effective	38.4	48.0	48.0	44.9	38.1	42.3	41.0	36.7	
Ineffective	14.8	13.2	23.3	21.6	24.8	21.2	23.5	25.6	
Undecided	1.5	0.4	5.0	7.5	1.5	0.9	3.5	1.3	
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
	(203)	(227)	(202)	(227)	(202)	(227)	(200)	(226)	
<b>Fairness</b>									
	<u>Invasion of Privacy</u>								
Fair	64.0	83.3	64.7	70.9	68.7	72.7	Is	57.1	59.3
Unfair	30.5	15.4	31.8	24.7	30.4	26.9	Is not	42.4	39.8
Undecided	5.4	1.3	3.5	4.4	1.0	0.4	Undec.	0.5	0.9
	100.0	100.0	100.0	100.0	100.0	100.0		100.0	100.0
	(203)	(227)	(201)	(227)	(201)	(227)		(198)	(226)
	p < .001								

TABLE A.3

DRIVER PERCEPTIONS OF ACCURACY, EFFECTIVENESS, AND FAIRNESS  
BY SPEED DETECTION METHOD AND AGE

	RADAR			VASCAR			SPEEDOMETER			ASD			
	< 30	30-44	45 +	< 30	30-44	45 +	< 30	30-44	45 +	< 30	30-44	45 +	
<b>Accuracy</b>													
Very accurate	13.1	20.8	29.3	17.7	19.4	27.3	21.5	19.4	26.0	30.8	28.5	30.0	
Fairly accurate	62.3	61.1	45.3	50.0	49.3	44.0	49.3	47.2	50.7	45.4	45.8	52.7	
Inaccurate	23.1	16.0	15.3	26.9	20.1	17.3	29.2	32.6	21.3	18.7	23.6	12.7	
Undecided	1.5	2.1	10.0	5.4	11.1	11.3	--	0.7	2.0	2.3	2.1	4.7	
	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (130)	100.0 (144)	100.0 (150)	
	p < .01												
<b>Effectiveness</b>													
Very effective	30.0	41.7	51.3	13.8	23.6	36.0	32.3	32.6	40.7	30.8	34.7	37.3	
Fairly effective	53.8	43.8	35.3	48.5	49.3	42.0	43.1	41.0	38.0	40.8	34.0	41.3	
Ineffective	14.6	14.6	12.0	33.1	20.1	14.7	23.8	26.4	19.3	27.7	29.2	17.3	
Undecided	1.5	--	1.3	4.6	6.9	7.3	0.8	--	2.0	0.8	2.1	4.0	
	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (130)	100.0 (144)	100.0 (150)	
	p < .01			p < .001									
<b>Fairness</b>													
Fair	73.1	76.4	73.3	65.4	67.4	70.7	66.2	66.7	78.7	<u>Invasion of Privacy</u> Is	66.2	61.1	48.7
Unfair	26.2	20.8	20.7	32.3	29.2	22.7	33.1	33.3	20.7	Is not	33.8	38.2	50.0
Undecided	0.8	2.8	6.0	2.3	3.5	6.7	0.8	--	0.7	Undec.	--	0.7	1.3
	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (130)	100.0 (144)	100.0 (150)		100.0 (130)	100.0 (144)	100.0 (150)
	p < .05									p < .05			

TABLE A.4

DRIVER PERCEPTIONS OF ACCURACY, EFFECTIVENESS, AND FAIRNESS  
BY SPEED DETECTION METHOD AND EDUCATION

	RADAR			VASCAR			SPEEDOMETER			ASD		
	< High School	High School Grad.	Any College	< High School	High School Grad.	Any College	< High School	High School Grad.	Any College	< High School	High School Grad.	Any College
<b>Accuracy</b>												
Very accurate	29.7	23.5	16.7	28.8	19.4	21.1	31.1	22.4	18.9	32.9	24.7	33.3
Fairly accurate	43.2	52.9	63.3	37.0	52.4	47.8	43.2	44.7	55.0	48.0	55.9	40.6
Inaccurate	17.6	19.4	16.7	23.3	17.7	23.9	25.7	30.6	26.1	13.7	17.6	22.8
Undecided	9.5	4.1	3.3	11.0	10.6	7.2	--	2.4	--	5.5	1.8	3.3
	100.0 (74)	100.0 (170)	100.0 (180)	100.0 (73)	100.0 (170)	100.0 (180)	100.0 (74)	100.0 (170)	100.0 (180)	100.0 (73)	100.0 (170)	100.0 (180)
<b>Effectiveness</b>												
Very effective	48.0	44.7	36.1	42.5	21.8	21.1	37.8	34.7	35.0	39.2	37.1	30.0
Fairly effective	38.4	41.8	47.8	38.4	50.0	46.1	36.5	41.2	41.7	39.2	35.3	41.7
Ineffective	11.0	12.9	15.6	12.3	22.9	25.6	23.0	22.9	23.3	18.9	26.5	25.0
Undecided	2.7	0.6	0.6	6.9	5.3	7.2	2.7	1.2	--	2.7	1.2	3.3
	100.0 (73)	100.0 (170)	100.0 (180)	100.0 (73)	100.0 (170)	100.0 (180)	100.0 (74)	100.0 (170)	100.0 (180)	100.0 (74)	100.0 (170)	100.0 (180)
p < .05												
<b>Fairness</b>												
Fair	75.3	71.8	76.7	72.6	68.8	65.9	74.0	70.6	69.4	Is 48.0	54.7	65.6
Unfair	20.6	25.9	20.0	23.3	27.7	30.2	24.7	28.8	30.6	Is not 52.0	44.1	33.9
Undecided	4.1	2.4	3.3	4.1	3.5	3.9	1.4	0.6	--	Undec. --	1.2	0.6
	100.0 (73)	100.0 (170)	100.0 (180)	100.0 (73)	100.0 (170)	100.0 (179)	100.0 (73)	100.0 (170)	100.0 (180)	100.0 (73)	100.0 (170)	100.0 (180)
p < .05												

TABLE A.5

DRIVER PERCEPTIONS OF ACCURACY, EFFECTIVENESS, AND FAIRNESS  
BY SPEED DETECTION METHOD AND INCOME

	RADAR		VASCAR		SPEEDOMETER		ASD	
	< \$12,000	\$12,000 +	< \$12,000	\$12,000 +	< \$12,000	\$12,000 +	< \$12,000	\$12,000 +
<b>Accuracy</b>								
Very accurate	25.8	19.8	23.7	21.2	20.4	23.0	30.1	29.6
Fairly accurate	45.2	60.1	49.5	14.6	55.9	47.7	51.6	47.6
Inaccurate	17.2	18.5	19.4	22.2	22.6	28.6	12.9	20.8
Undecided	11.8	1.6	7.5	9.1	1.1	0.7	5.4	2.0
	100.0 (93)	100.0 (308)	100.0 (93)	100.0 (307)	100.0 (93)	100.0 (308)	100.0 (93)	100.0 (307)
<b>Effectiveness</b>								
Very effective	53.8	38.4	38.7	20.5	36.6	35.4	37.6	34.4
Fairly effective	36.6	45.6	39.8	49.2	40.9	40.9	41.9	37.7
Ineffective	8.6	15.0	17.2	24.1	20.4	23.1	17.2	26.3
Undecided	1.1	1.0	4.3	6.2	2.2	0.6	3.2	1.6
	100.0 (93)	100.0 (307)	100.0 (93)	100.0 (307)	100.0 (93)	100.0 (308)	100.0 (93)	100.0 (308)
	p < .05		p < .01					
<b>Fairness</b>								
							<b>Invasion of Privacy</b>	
Fair	76.3	72.3	71.0	67.3	74.2	70.0	Is 52.7	59.0
Unfair	18.3	25.4	22.6	30.1	25.8	29.3	Is not 46.2	41.0
Undecided	5.4	2.3	6.5	2.6	--	0.7	1.1	--
	100.0 (93)	100.0 (307)	100.0 (93)	100.0 (307)	100.0 (93)	100.0 (307)	100.0 (93)	100.0 (307)

TABLE A.6

## ATTITUDES TOWARD OWNER RESPONSIBILITY BY DEMOGRAPHIC CHARACTERISTICS

Is Owner Responsible	REGION				INCOME		
	NE	S	MW	W	< \$12,000	\$12,000 +	
Yes	15.0	20.6	18.2	13.8	20.4	16.9	
No	82.8	75.9	79.1	85.1	78.5	81.5	
Undecided	2.2	3.5	2.7	1.1	1.1	1.6	
	100.0	100.0	100.0	100.0	100.0	100.0	
	(93)	(141)	(110)	(87)	(93)	(308)	

	SEX		AGE			EDUCATION		
	M	F	< 30	30-44	45 +	< High School	High School Grad.	Any College
Yes	20.3	15.0	13.8	13.9	24.0	20.3	17.7	16.7
No	78.2	82.8	84.6	84.7	73.3	77.0	80.6	81.7
Undecided	1.5	2.2	1.5	1.4	2.7	2.7	1.8	1.7
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(202)	(227)	(130)	(144)	(150)	(74)	(170)	(180)

p < .05

TABLE A.7

ATTITUDES TOWARD PHOTOGRAPHING DRIVER AND LICENSE PLATE,  
BY DEMOGRAPHIC CHARACTERISTICS

Attitude On Photo	REGION				INCOME	
	NE	S	MW	W	< \$12,000	\$12,000 +
Favorable	64.5	55.3	50.9	59.8	66.7	57.3
Unfavorable	34.4	43.3	43.6	37.9	30.1	42.0
Undecided	1.1	1.4	5.4	2.3	3.2	0.7
	100.0 (93)	100.0 (141)	100.0 (110)	100.0 (87)	100.0 (93)	100.0 (307)
	p < .05					

	SEX		AGE			EDUCATION		
	M	F	< 30	30-44	45 +	< High School	High School Grad.	Any College
Favorable	54.7	64.8	50.8	57.6	70.0	71.2	64.7	50.6
Unfavorable	43.8	34.3	49.2	41.0	28.0	27.4	34.1	48.3
Undecided	1.5	0.9	--	1.4	2.0	1.4	1.2	1.1
	100.0 (201)	100.0 (227)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (73)	100.0 (170)	100.0 (180)
	p < .05		p < .01			p < .01		